USER GUIDE

Overhead & Modular Version - Release 7

DV-1

WATCH GUARD
DIGITAL IN · CAR VIDEO

WatchGuard DV-1 User Guide

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Enforcement Video LLC is a Texas Limited Liability Company doing business as WatchGuard Video.

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This document is applicable to DV-1 Firmware Version 7.0 and above.

SAFETY WARNINGS
To prevent fire or shock hazard, do not expose the DV-1 unit to rain or moisture. To avoid electrical shock, do not disassemble the DV-1 housing or place any objects other than the DVD inside the system. Refer servicing to qualified personnel only. The use of optical instruments with the DV-1 product will increase eye hazard. As the laser beam used in the DVD drive is harmful to eyes, do not attempt to disassemble the DVD drive. Refer servicing to qualified personnel only. Should any solid object or liquid fall into the DV-1 unit, disconnect the unit from power and have it checked by qualified personnel before further operation.

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1 Introduction to WatchGuard Video

1.1 WELCOME STATEMENT AND COMPANY VALUES

Thank you for choosing the WatchGuard Video DV-1, the world's first in-car Direct-to-DVD Video system that records directly onto re-writable DVD-Video discs that play in regular DVD players. The company was founded to bring the finest mobile law enforcement technology to the market.

The WatchGuard DV-1 is the culmination of nearly 60 man-years of engineering development. This sophisticated system performs real time DVD-Video authoring in a mobile environment. The proprietary computing platform employs a dual-drive architecture and optical drive ruggedization techniques developed for U.S. fighter jets. No company in this industry has invested more engineering capital, or has been more aggressive in research and development than WatchGuard Video. With seven patents pending, the WatchGuard DV-1 represents the most advanced technology available in the industry.

The management of WatchGuard Video places an emphasis on developing individual character qualities essential for true success, and the company is dedicated to maintaining a culture of service. Our management staff is encouraged to practice servant-based leadership within their groups with the knowledge that by serving God, people are empowered to better serve each other. This environment creates the framework for WatchGuard Video to ultimately serve our customers in a manner that instills the highest level of trust, confidence, and satisfaction.

1.2 NOTICES, CAUTIONS, AND WARNINGS

NOTICE
Notices provide useful supplemental information that is pertinent to the task being described. They may appear either before or after the text to which they apply.

CAUTION!
Cautions describe critical information that, if ignored, could result in damage to the DV-1, inoperability or degradation in function, or injury to personnel. Cautions always appear before the critical text to which they apply.

WARNING!
Warnings provide information pertaining to possible data loss.

1.3 USING THIS DOCUMENT

Use the *DV-1 User Guide* to **configure**, **operate**, and **maintain** an installed *overhead* **or** *modular* DV-1 system.

Chapter 11 – Quick Start Guide on page 117 provides the basic information necessary to begin using the DV-1 system.

Chapter 12 – Other Modes of Operation on page 127 provides basic information about temporary DV-1 operating modes.

For other tasks not covered in this document, see *Related Documents* on page 10.

The left side of each page *usually* contains:

- Informational and procedural text
- Graphical depictions of the buttons/menus used to perform procedures
- Notices, cautions, or warnings

The right side of each page *usually* contains the resulting screen, an error message, or a success message. Once familiar with DV-1 operation, many of the tasks can quickly be spotted by glancing down the left side of the document.

NOTICE
Anytime a key (🔑) is displayed, an *Administrator PIN* is required to perform the steps.

1.4 PLEASE GIVE US YOUR SUGGESTIONS

We want to hear from you. Tell us about your experiences and how you are using your DV-1. We will do our best to accommodate any suggestions you may have in future firmware revisions and hardware.

U.S. customers, call Customer Service at 1-800-605-6734 or email us at customerservice@watchguardvideo.com with your comments, questions, and concerns. International customers, contact your local distributor.

1.5 DV-1 FIRMWARE UPDATES

Most of the features of the WatchGuard DV-1 are based on the software resident within your system (often called *firmware*). We are committed to the continual testing and improvement of the DV-1 system firmware. Improvements and software updates for the DV-1 firmware are provided to your agency for the life of the product, when available.

See *Updating DV-1 Firmware* on page 92 for further details.

1.6 DV-1 HARDWARE VERSIONS

The unit's original versions are the DV-1A and the DV-1B. The DV-1A and the DV-1B are mostly identical. The newer versions of the unit are the DV-1C, DV-1D, and DV-1E. For version identification see the serial number on the unit.

The DV-1C, DV-1D, and DV-1E provide the following additional functionality to the DV-1A and DV-1B:

- **Combined power and I/O ports** – One locking connector provides more current-carrying ability for the unit.
- **Audio/visual (A/V) port** – Used to transmit the analog audio and video of the DV-1 to an external device (such as a television or video server).
- **USB port** – For future expansion of the unit.
- **Basic function control panel (BFCP) port –** For future expansion to connect the unit to a Windows application running on a laptop computer.
- Faster DVD burning speeds
- Ability to reduce the current consumption when the unit is off (< 5 mA)
- Faster Ethernet speed
- Increased reliability due to manufacturing improvements and environmental enhancements
- Ability to mute cabin and wireless microphones independently

The DV-1D also has the following feature:

- Redesigned DVD drive carriage
  - Reduced potential bladder damage
  - Improved response to vibration

The DV-1E also has the following features:

- Added power protection circuit that guards against over voltage and reverse voltage
- Ability to operate down to 5V
- **Higher resolution LCD** – More realistic video playback with better colors
- Lowest radiated emissions of any DV-1 type
- Environmentally-responsible lead-free process on the main board

1.7 DV-1 TECHNICAL SPECIFICATIONS

For the most current DV-1 technical specifications, go to http://watchguardvideo.com/dv1/specs.

1.8 MANUFACTURER CONTACT INFORMATION

WatchGuard Video
Attn: Customer Service Department
415 Century Parkway
Allen, Texas 75013
1-800-605-6734
customerservice@watchguardvideo.com

1.9 RELATED DOCUMENTS

Refer to http://watchguardvideo.com/support for the following supporting documentation:

- DV-1 Quick Reference Guide
- Overhead System Installation Overview
- Modular System Installation Overview
- DV-1 Menu Navigation Guides (GUI)
- Fleet Manager Utility (FMU) Getting Started Guide
- DVD Manager Utility (DMU) Getting Started Guide

2 Safety, Product Care, and Warranty

2.1 IMPORTANT SAFETY INSTRUCTIONS

Adhere to the following safety instructions while using the DV-1:

- Do not use this device near water.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat registers or other devices that produce heat.
- Only use attachments/accessories specified by the manufacturer.
- Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way:
    - Power-supply cord or plug is damaged
    - Liquid has been spilled on or into it
    - Objects have fallen into the device
    - Device has been exposed to rain or moisture
    - Has been dropped

2.2 DRIVER'S SAFETY

Take the following precautions while driving:

- Comply with all local traffic rules and regulations.
- The driver must not watch or operate the device or any component thereof while driving. It may lead to distraction and cause an accident.
- Park the vehicle in a safe place to watch or operate the device.
- Do not obstruct the field of view of the driver.

2.3 INSTALLATION CAUTIONS

Do **not** install the device where it is:

- Near heat sources (such as heater vents)
- Exposed to rain or moisture
- Exposed to excessive dust or dirt
- Subject to excessive vibration
- Near vehicle components that heat up over time such as hoses, high current wires, and braking system components
- Near other objects that obstruct air-flow to the openings and slots. The device must have proper ventilation to prevent over-heating.
- Obstructing the field of view of the driver.

2.4 POST-INSTALLATION CAUTIONS

Take the following precautions after installing the DV-1:

- Do not hang objects from the device.
- Do not insert your hands, fingers or foreign objects into the device. It may cause injury or damage to the device.
- Take care not to bump your head against the device when in the vehicle.
- Keep small articles out of the reach of children.
- If the system does not work, check the connections first. If everything is in order, check the fuse.

2.5 MODIFICATION WARNING

If while under the warranty period, it is determined that the WatchGuard Video system was internally changed, modified, or repair attempted, the system warranty will become null and void.

2.6 PROPER DISPOSAL

To ensure environmental compliance, disposal of the DV-1 should be in accordance with other electronic devices such as computers.

2.7 MAINTENANCE RESPONSIBILITIES

The DV-1 does not require scheduled maintenance when operated in accordance with the instructions provided in this document.

2.8 RECORDING FAILURE COMPENSATION

WatchGuard Video is not liable and will not compensate for any lost recordings or relevant losses, including when recordings are not made due to reasons including recording failure, or when the contents of a recording are lost or damaged as a result of DVD drive failure or repair undertaken to the DVD drive.

2.9 WARRANTY

2.9.1 Limited One (1)-Year Warranty

WatchGuard Video, in recognition of its responsibility to provide quality systems, components, and workmanship, warrants each system, part, and component it manufactures (except those excluded in *Parts And Components Not Covered* below), to be free from defects in material and workmanship for a limited **ONE-YEAR PERIOD** from the date of purchase. Where defects in material or workmanship may occur, the following warranty terms and conditions apply:

WARRANTOR – This warranty is granted by WatchGuard Video, 415 Century Parkway, Allen, Texas 75013, Telephone: 972-423-9777, Facsimile: 972-423-9778.

PARTIES TO WHOM WARRANTY IS INTENDED – This warranty extends to the original purchaser of the equipment only and is not transferable. Any exceptions must be approved in writing from WatchGuard Video.

PARTS AND COMPONENTS COVERED – All parts and components and repair labor of the warranted unit manufactured and/or installed by WatchGuard Video are covered by this warranty, except those parts and components excluded below.

PARTS AND COMPONENTS NOT COVERED – Warranty excludes normal wear-and-tear such as frayed or broken cords, broken connectors, scratched or broken display, or physical abuse of any kind. Manufacturer reserves the right to charge for damages resulting from abuse or extraordinary environmental damage to the unit during the warranty period at rates normally charged for repairing such units not covered under warranty. In cases where potential charges would be incurred due to said damages, the agency submitting the system for repairs will be notified. Altered, damaged, or removed serial numbers void any warranty. If while under the warranty period, it is determined that the WatchGuard Video system was internally changed, modified, or repair attempted, the system warranty will become null and void. Installation, removal, and re-installation are not covered.

LIABILITY – WatchGuard Video will not be liable for any direct, indirect, consequential, or incidental damages arising out of the use of or inability to use the system. WatchGuard Video will not be responsible for any removal or re-installation cost of the unit or for damages caused by improper installation.

REPAIR TIME – WatchGuard Video is dedicated to an extremely high level of Customer Service. Under most circumstances WatchGuard will repair, test, and ship the defective unit or component within three (3) business days of receipt of the unit to its facility (excluding date of receipt).

REMEDY – If, within the duration of this warranty, a unit or component covered by this warranty is returned to WatchGuard Video and proves to be defective in material or workmanship, WatchGuard Video shall (at its option) repair or replace the defective items at our expense. Replacement of a defective component(s) pursuant to this warranty shall be warranted for the remainder of the warranty period applicable to the system warranty period.

SHIPPING – During the first ninety (90) days of the initial warranty period, WatchGuard Video will provide to the purchaser a prepaid shipping label for return of any defective unit provided serial numbers are submitted with request. Failure to obtain the WatchGuard Video-provided shipping label or after the first ninety (90) days, the purchaser will be responsible for any shipping charges to the WatchGuard Video factory or to an approved service center. All return shipping to the purchaser during any warranty period will be prepaid ground shipping only. Any expedited shipping will be the responsibility of the purchaser.

EXTENDED WARRANTY – Extended Warranties may be purchased directly from WatchGuard Video. Any and all extended warranties must be purchased prior to the expiration of any previous warranty. Failure to purchase an extended warranty prior to expiration of any prior warranty will require the covered unit to be physically inspected at the facility of the manufacturer at the labor rate of 1 hour prior to any new warranty being allowed.

Should you have any further questions regarding WatchGuard Video system warranty, please direct them to:

WatchGuard Video
Attn: Customer Service Department
415 Century Parkway
Allen, Texas 75013
1-800-605-6734
customerservice@watchguardvideo.com

2.10 OWNER'S RECORD

The model and serial number are located at the rear or side of the unit. Record the serial number in the space provided. Refer to them whenever you contact Customer Service or your local distributor.

Model	
Serial No.	

3 DV-1 System Overview

3.1 DV-1 SYSTEM DESCRIPTION

The WatchGuard DV-1 is a digital in-car video system that records evidence video onto rewritable DVDs that play on regular DVD players. The system can record up to eight hours of high-quality digital video onto a single, inexpensive DVD that can be reused many times.

Because of the DVD+RW format that is used in the DV-1, there is no need for disc finalization before playing back on a computer or DVD player. The DVDs that come out of the DV-1 are ready to play on your DVD player or computer. Evidence recorded in the car is the exact evidence that is taken to court.

Figure 1 Overhead Unit

The DV-1 is available in either a one-piece overhead system or a two-piece modular system. The operation of both versions is identical.

The DV-1 includes an integrated, wide temperature range hard drive and a DVD drive. **The system continuously records to the hard drive whenever the system is on, and only triggered events or manual recordings are burned to the DVD.** The events (traffic stops) are automatically divided into selectable titles with thumbnail images and date/time stamps that are organized on a DVD Startup Menu.

Figure 2 Modular Unit

For an overview of DV-1 operation, see the DV-1 Training Video at http://watchguardvideo.com/dv1/dv1-training-videos.

DV-1 features include:

- **Pre-/Post-Event Recording** – Up to 10 minutes of both pre- & post-event video is automatically added to the beginning and/or end of each recorded event.
- **Automatic DVD Back-Up** – Up to the last 6 DVDs created are automatically backed up on the hard drive. Should a DVD be lost, damaged, or intentionally destroyed, a Supervisor can replicate an identical copy of the entire missing DVD.
- **Automatic Disc Overflow Handling** – Never runs out of disc space. While recording, if a DVD fills to capacity, the system automatically stores overflow video on the integrated hard drive until a new DVD is inserted.
- **Background Recording** – The DV-1 constantly buffers video to the integrated hard drive in a large circular loop up to 48 hours long. Hard drive video can be reviewed in the vehicle and can also be transferred to a laptop computer using the *Fleet Manager Utility* software.
- **Simultaneous Record and Playback** – The DV-1 can playback previously recorded events while simultaneously recording new events.

- **Fully Redundant Dual Drive Architecture** – Includes both an integrated automotive hard drive and a DVD drive. The system records events such as traffic stops and drug seizures directly onto DVD-Video discs while using the hard drive for buffering pre-event video and automatically backing up the DVDs.
- **Automatic Event Segmentation** – The events (traffic stops) are automatically divided into selectable titles with thumbnail images and time/date stamps that are organized on a DVD Startup Menu.
- **Split-Screen Recording** – The DV-1 can record video from any two cameras simultaneously on one screen. Choose from the Front, Cabin, or Rear/Auxiliary (optional) cameras to display and record on-screen together. In addition, switch between cameras *on-the-fly* while recording.

3.2 ACCESSORIES AND INPUT DEVICES

The following devices come with the DV-1:

- Forward-facing and cabin cameras, either a combination camera (includes two high-resolution color cameras) or separate cameras:
    - **Combination camera** – includes a forward-facing zoom camera and a rear-facing cabin camera
    - **Separate cameras** – include a wide dynamic range (WDR) forward-facing zoom camera and an infrared cabin camera
- Optional rear camera
- 2.4 GHz digital wireless microphone
- Amplified cabin microphone
- Optional intelligent uninterruptible power supply (battery backup)

The latest accessories and input devices are on the web at: http://watchguardvideo.com/.

3.3 SOFTWARE UTILITIES

Fleet Manager Utility – A Windows 7/Vista/XP software application used to create configuration files for loading batch settings into the DV-1 unit. See *Fleet Manager Utility* on page 97 for details.

DVD Manager Utility – A Windows 7/Vista/XP software application with DVD tools including disc copy, save to MPEG-2, and corrupted disc data recovery. See *Software Programs for Playback* on page 66 for details.

3.4 PERMISSION LEVELS

The DV-1 is configured with three permission levels. This enables departments to control who can use the features, change the configurations, or perform maintenance on the unit.

- **User** – Officer-level permission to use the DV-1 in accordance with the configuration established by the Supervisor
- **Supervisor**:
    - Add or delete users
    - Determine operational parameters of the DV-1 (e.g., start/stop triggers, default user settings, etc.)
    - Set Department Name
    - Configure pre-/post-event times
    - Choose video quality
    - Determine which on-screen text is recorded to the DVD
    - Configure input devices
    - Update firmware
    - Format the hard drive
- **Administrator** – Add or delete Supervisors and their passwords

3.5 CONNECTIONS AND CABLE DIAGRAMS

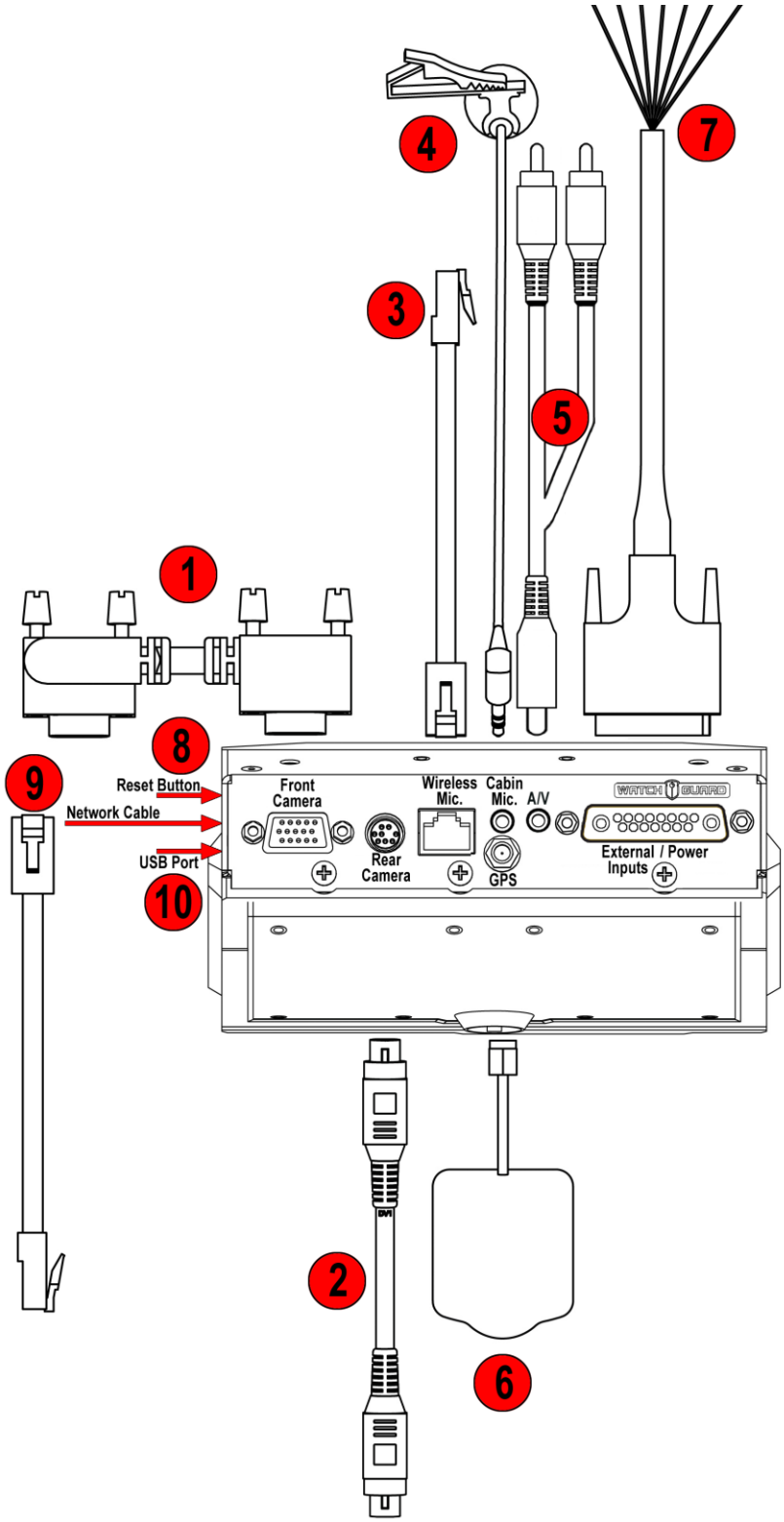


Figure 3 Connections and Cable Diagram – Overhead Unit

Table 1 Overhead Unit Cable Descriptions

1	**Front Camera Cable**: Connects the DV-1 to the Front/Combination Camera.
2	**Rear/Auxiliary Camera Cable (optional):** Connects the DV-1 to the Rear/Auxiliary Camera.
3	**Wireless Microphone Cable**: Connects the DV-1 to the wireless microphone system.
4	**Cabin Microphone Cable**: Captures audio from inside the vehicle.
5	**A/V:** Connects audio/video components to the DV-1.
6	**GPS Antenna**: Connects the DV-1 to an optional GPS unit.
7	**External Inputs/Power Cable**: Provides power from the vehicle battery to the DV-1 and provides external trigger inputs such as radar, siren, lights, etc.
8	**Reset Button**: Re-powers the DV-1.
9	**Network Cable**: Connects the DV-1 to a network.
10	**USB Port**: For future expansion.

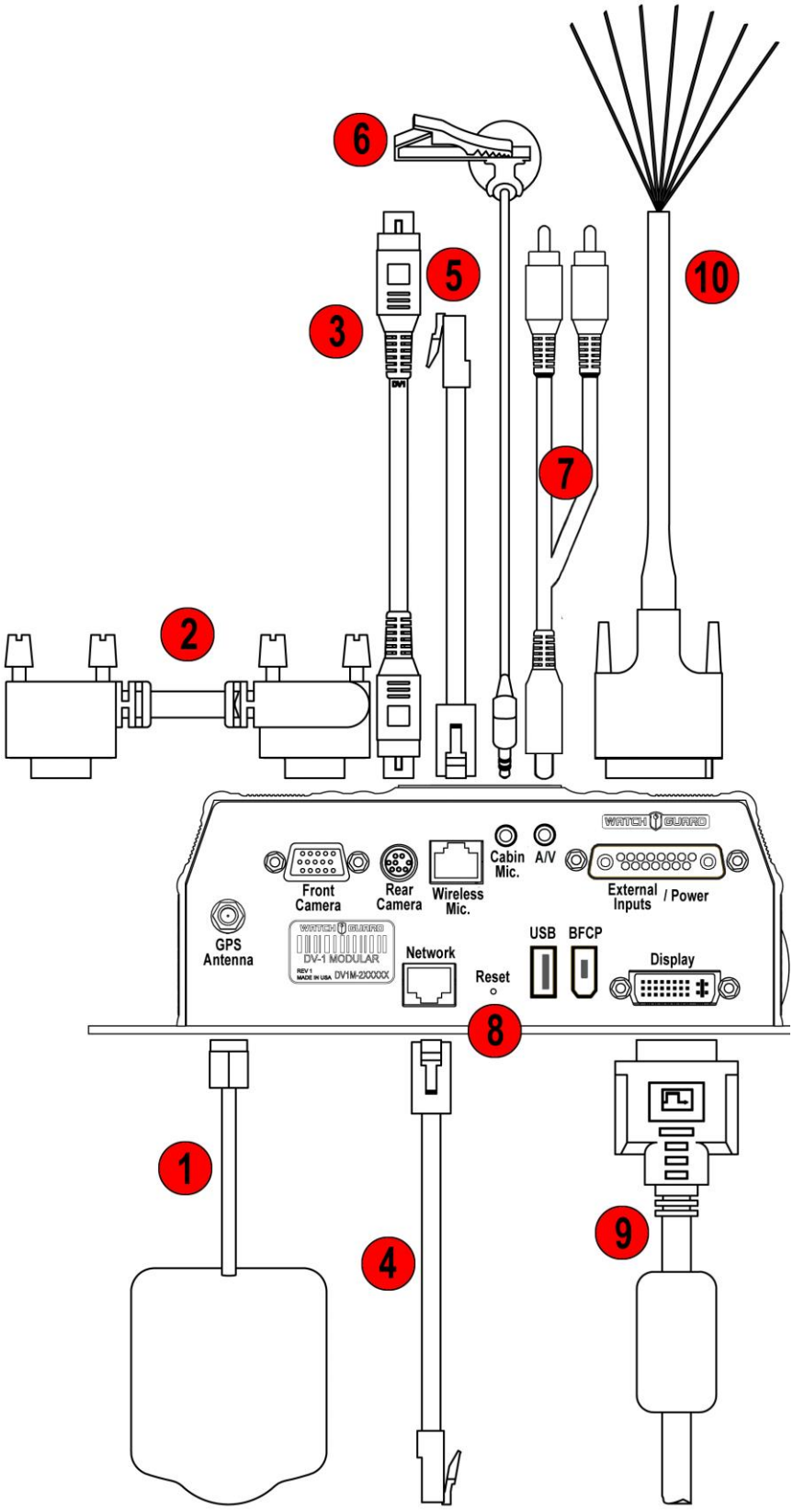


Figure 4 Connections and Cable Diagram – Modular Unit

Table 2 Modular Unit Cable Descriptions

1	**GPS Antenna**: Connects the DV-1 to an optional GPS unit.
2	**Front Camera Cable**: Connects the DV-1 to the Front/Combination Camera.
3	**Rear/Auxiliary Camera Cable (optional)**: Connects the DV-1 to the Rear/Auxiliary Camera.
4	**Network Cable**: Connects the DV-1 to a network.
5	**Wireless Microphone Cable**: Connects the DV-1 to the wireless microphone system.
6	**Cabin Microphone Cable**: Captures audio from inside the vehicle.
7	**A/V:** Connects audio/video components to the DV-1.
8	**Reset Button**: Re-powers the DV-1.
9	**Display Cable**: Connects the DV-1 to an external display.
10	**External Inputs/Power Cable**: Provides power from the vehicle battery to the DV-1 and provides external trigger inputs such as radar, siren, lights, etc.

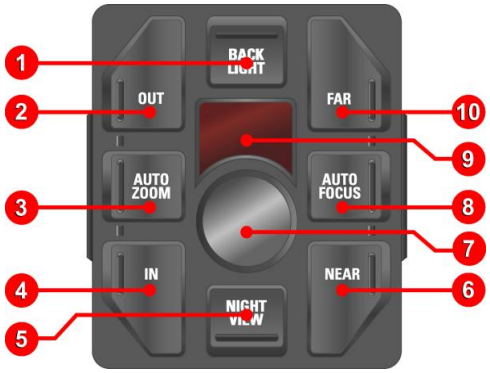
3.6 FRONT PANEL CONTROLS

Figure 5 Front Panel Controls

Table 3 Front Panel Controls

1	Date
2	Menu key (Navigation Key 1)
3	Navigation Key 2
4	Navigation Key 3
5	Radar Speeds Target -- Fastest/Locked – Patrol
6	External Input Indicators
7	Power Indicator
8	On Switch
9	Off Switch
10	Pause
11	Skip backward to previous chapter
12	Stop playback; stop recording; eject DVD
13	Rewind 60, 90, 120, or 180 seconds depending on the video quality
14	Play
15	Fast-forward 60, 90, 120, or 180 seconds depending on the video quality
16	Record
17	Skip forward to next chapter
18	Recording Indicator
19	Play Indicator
20	DVD Disc Usage Meter
21	Display Menu
22	Camera Menu
23	DVD Status Icon
24	Volume Menu
25	Microphone Menu
26	Microphone Indicators
27	Camera Indicators
28	Vehicle ID Number
29	Officer Name
30	Department Name
31	Navigation Key 6
32	Crash Detection
33	Navigation Key 5
34	GPS Coordinates (optional)
35	Navigation Key 4
36	Time (Military Format – 24 hours)

3.7 FRONT CAMERA KEYPAD



See *Front Camera Keypad Controls* on page 62 for further details.

Table 4 Front Camera Keypad

1	Backlight Compensation
2	Zoom Out (Manual)
3	Auto-Zoom
4	Zoom In (Manual)
5	Nightview Mode
6	Focus Near (Manual)
7	Cabin Camera
8	Auto-Focus
9	Infrared Array
10	Focus Far (Manual)

3.8 DVD STATUS ICONS

No Disc

Formatting

Detecting

Ejecting

Valid Disc

Overflow Discs*

Writing

Invalid Disc

Busy/Waiting

Out of Temperature Range

* The overflow numeral displays on top of the currently displayed icon.

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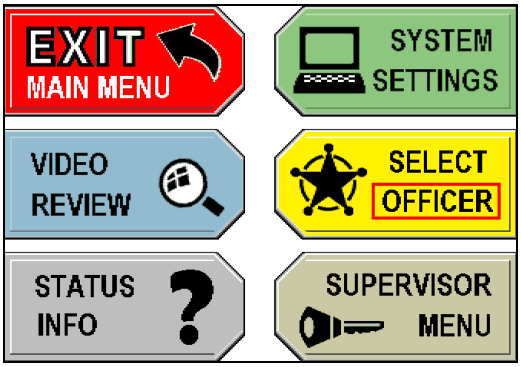
4 DV-1 Configuration

4.1 MAIN MENU ACCESS

Press the **MENU** key on the **Front Panel** of the DV-1.

The **Main Menu** is displayed with the following options:

- **Exit Main Menu** – Exit the **Main Menu** and return to the main camera display screen
- **Video Review**:
    - Play back recorded or buffered events on the hard drive
    - Edit event tags, if defined, on recorded events
    - Play back video starting with current time
    - Define a new event start/stop using the **Record After the Fact** (RATF) feature
- **Status Info** – Information about the DVD, hard drive, system, user, and devices
- **System Settings**:
    - Set time/date, department name, vehicle ID, and officer names
    - Setup input devices (radar, siren, etc.)
    - Set recording criteria (pre-/post-event, start/stop triggers, video quality, and camera auto-zoom)
    - Manage on-screen text
    - Save or restore officer preferences
- **Select Officer** – Select the current officer



- **Supervisor Menu**:
    - Set system behavior (controls when the system powers on or off based on vehicle on or off status)
    - Set microphone behavior (determines when the microphone(s) are turned on or off)
    - Manage permissions for settings (defines system permissions for the selected officer)
    - Manage DVD and hard drive (format DVD, hard drive maintenance, reset recording state, set number of DVDs to backup, burn DVD from backup)
    - Manage Supervisor passwords (🔑 requires Administrator login to add, edit, or delete **Supervisor PIN** numbers)

Press the **MENU** key again on the **Front Panel** of the DV-1 to exit the **Main Menu** and return to the main camera display screen.

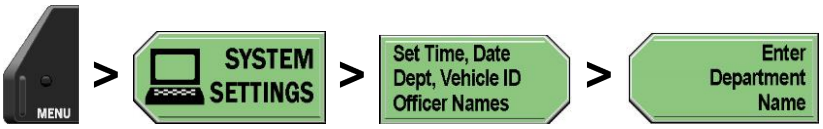
4.2 FLEET MANAGER UTILITY

Many of the configuration settings in this section can be done easily using WatchGuard's *Fleet Manager Utility*. The *Fleet Manager Utility* is a Windows 7/Vista/XP application that is used to create configuration files that can be burned to a CD and loaded into the DV-1. Saving multiple configuration files on a single CD simplifies the process of loading different configurations onto different vehicles.

See *Fleet Manager Utility* on page 97 for further details.

4.3 SET DEPARTMENT NAME

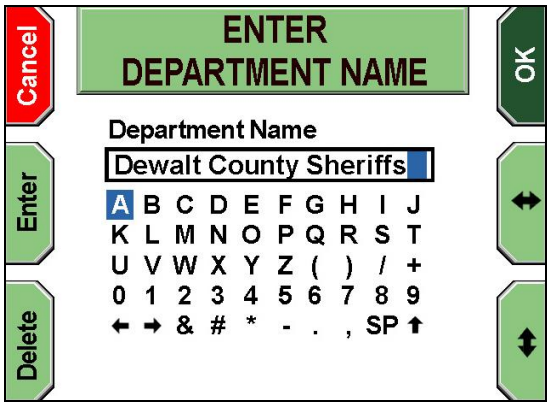
Supervisor access is required unless the **Enter Department Name** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.



Press **MENU** > **SYSTEM SETTINGS** > **Set Time, Date, Dept, Vehicle ID, Officer Names** > **Enter Department Name**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **ENTER DEPARTMENT NAME** screen is displayed.



Press the ↔and ↕ keys to navigate to the character(s) desired, and then press **Enter** to select. To erase an undesired character, press **Delete**.

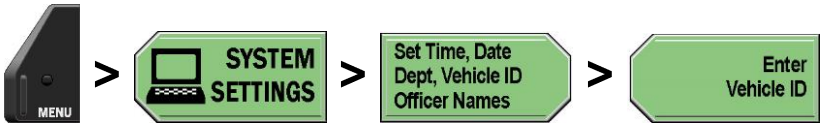
Special characters are as follows:

- **SP** – Space bar
- ↑ – Uppercase/lowercase letters toggle
- ← and → arrows – Move the cursor left and right to allow character insertion

Press **OK** to confirm, or **Cancel** to exit without making changes.

4.4 SET VEHICLE ID

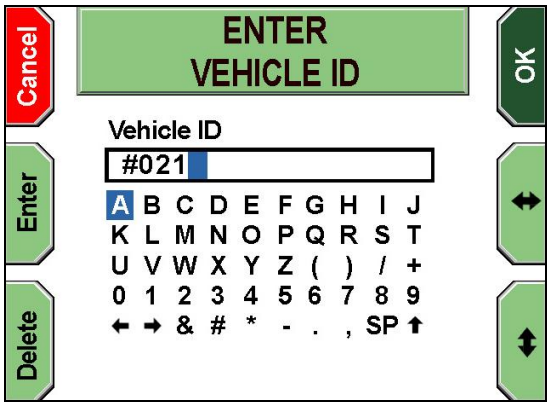
Supervisor access is required unless the **Enter Vehicle ID** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.



Press **MENU** > **SYSTEM SETTINGS** > **Set Time, Date, Dept, Vehicle ID, Officer Names** > **Enter Vehicle ID**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **ENTER VEHICLE ID** screen is displayed.



Press the ↔and ↕ keys to navigate to the character(s) desired, and then press **Enter** to select. To erase an undesired character, press **Delete**.

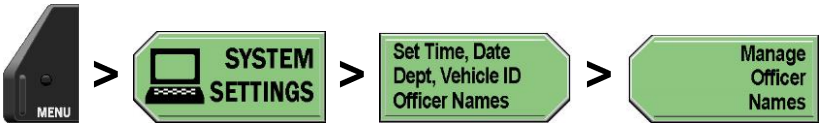
Special characters are as follows:

- **SP** – Space bar
- ↑ – Uppercase/lowercase letters toggle
- ← and → arrows – Move the cursor left and right to allow character insertion

Press **OK** to confirm, or **Cancel** to exit without making changes.

4.5 MANAGE OFFICER NAMES

The **Manage Officer Names** screens allow you to add, edit, and delete officers.

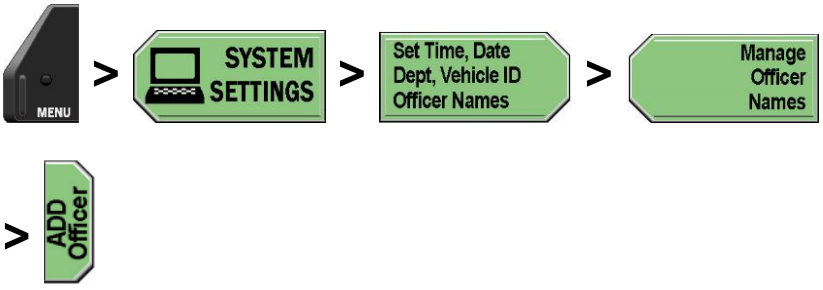


Press **MENU** > **SYSTEM SETTINGS** > **Set Time, Date, Dept, Vehicle ID, Officer Names** > **Manage Officer Names**.

The **MANAGE OFFICER NAMES** screen is displayed.

4.5.1 Add Officer

Supervisor access is required unless the **Add/Edit Officer Names** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.



Press **MENU** > **SYSTEM SETTINGS** > **Set Time, Date, Dept, Vehicle ID, Officer Names** > **Manage Officer Names** > **ADD Officer**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **ADD OFFICER NAME** screen is displayed.

Press the ↔ and ↕ keys to navigate to the character(s) desired, and then press **Enter** to select. To erase an undesired character, press **Delete**.

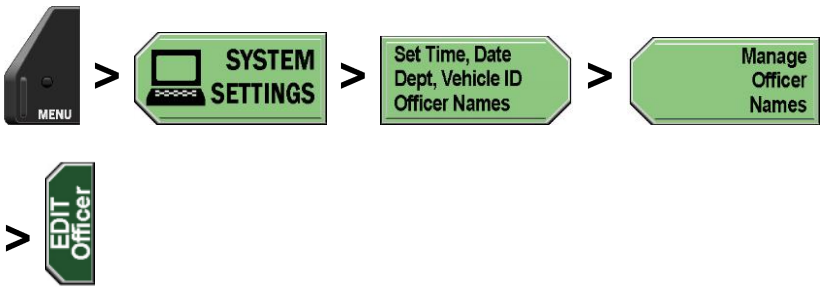
Special characters are as follows:

- **SP** – Space bar
- ↑ – Uppercase/lowercase letters toggle
- ← and → arrows – Move the cursor left and right to allow character insertion

Press **OK** to confirm, or **Cancel** to exit without making changes.

4.5.2 Edit Officer

Supervisor access is required unless the **Add/Edit Officer Names** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

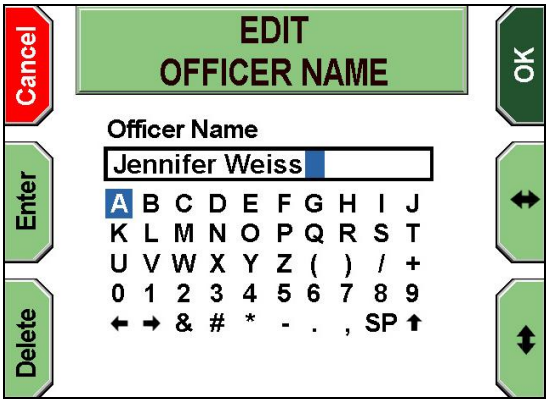


Press **MENU** > **SYSTEM SETTINGS** > **Set Time, Date, Dept, Vehicle ID, Officer Names** > **Manage Officer Names > EDIT Officer**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

NOTICE
Supervisor access is required to edit a supervisor name.

The **EDIT OFFICER NAME** screen is displayed.



Press the ↔ and ↕ keys to navigate to the character(s) desired, and then press **Enter** to select. To erase an undesired character, press **Delete**.

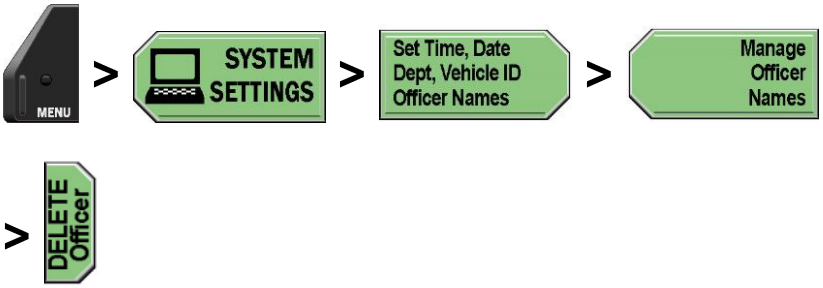
Special characters are as follows:

- **SP** – Space bar
- ↑ – Uppercase/lowercase letters toggle
- ← and → arrows – Move the cursor left and right to allow character insertion

Press **OK** to confirm, or **Cancel** to exit without making changes.

4.5.3 Delete Officer

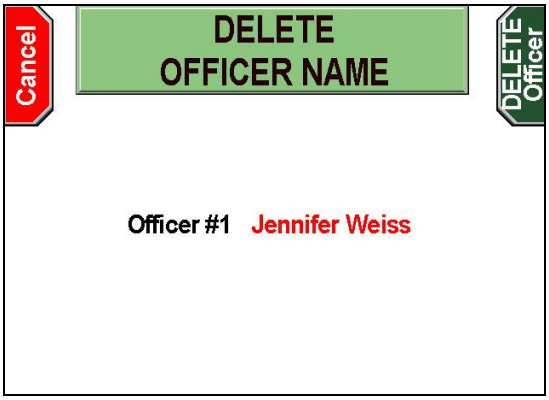
Officer names can only be deleted after a **Supervisor PIN** has been entered. Follow the steps listed in *Supervisor and Administrator Login* on page 78.



Press **MENU** > **SYSTEM SETTINGS** > **Set Time, Date, Dept, Vehicle ID, Officer Names > Manage Officer Names > DELETE Officer**.

The **DELETE OFFICER NAME** confirmation screen is displayed.

Press **DELETE Officer** to confirm the deletion and exit the screen, or press **Cancel** to exit without making changes.



4.6 SETUP INPUT DEVICES

Supervisor access is required to configure input devices unless the **Setup Input Devices** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

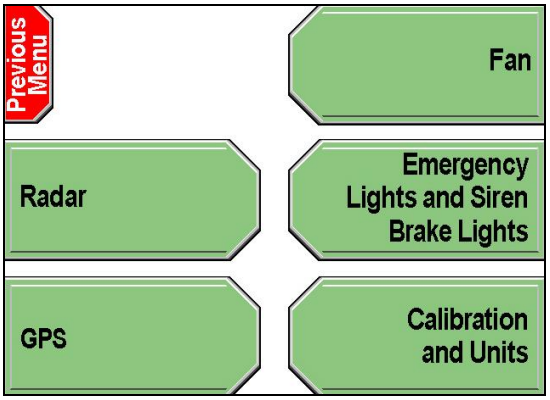
The following input devices can be configured:

- Radar
- Fan
- Lights, sirens, and brakes
- GPS system

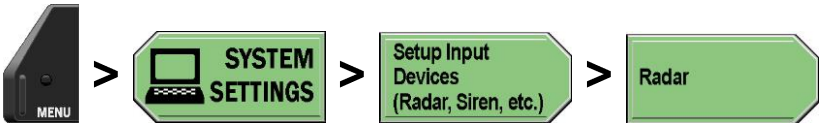
Press **MENU** > **SYSTEM SETTINGS** > **Setup Input Devices (Radar, Siren, etc.)**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SETUP INPUT DEVICES** screen is displayed.

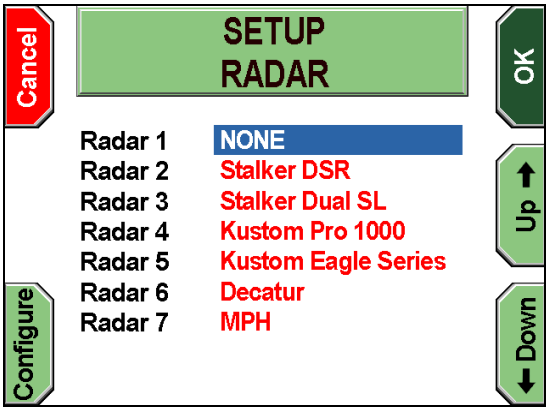


4.6.1 Radar Setup



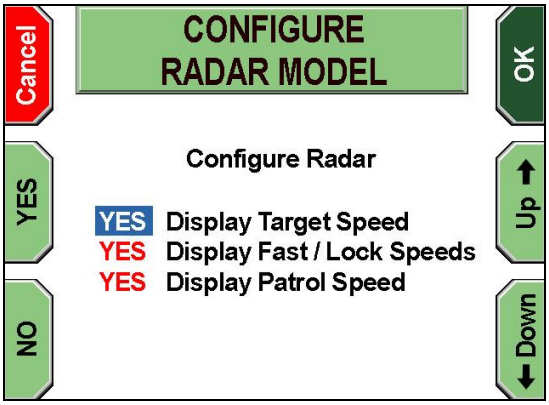
Press **MENU** > **SYSTEM SETTINGS** > **Setup Input Devices (Radar, Siren, etc.)** > **Radar**.

The **SETUP RADAR** screen is displayed.



Press the **Up**⬆ & **Down**⬇ keys to select the radar system, and then press **Configure**.

The **CONFIGURE RADAR MODEL** screen is displayed.



Press the **Up**⬆ & **Down**⬇ keys to select the display setting, and then press **YES** or **NO** for each setting you wish to change.

YES displays the speed on-screen and in the closed-captioning on the DVD. **NO** hides the speed from being shown on-screen and in the closed-captioning.

On-screen terms are as follows:

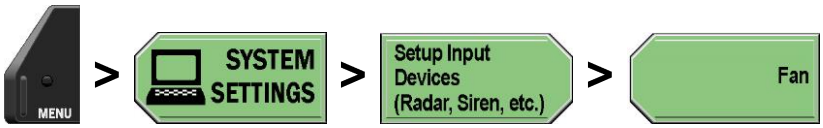
- **Display Target Speed** – Displays speed of target vehicle
- **Display Fast/Lock Speeds** – *Fast* displays the fastest vehicle in a group of cars; *Lock* displays the locked vehicle speed of the radar.
- **Display Patrol Speed** – Displays speed of patrol vehicle

Press **OK** to confirm, or **Cancel** to exit without making changes.

4.6.2 Fan Speed

Increasing the fan speed provides additional cooling for the unit. Decreasing the fan speed reduces cooling for the unit and may also reduce the fan noise.

CAUTION!
This operation should only be performed when instructed by Customer Service personnel. U.S. customers, call 1-800-605-6734 or email customerservice@watchguardvideo.com prior to selecting this option. International customers, contact your local distributor.

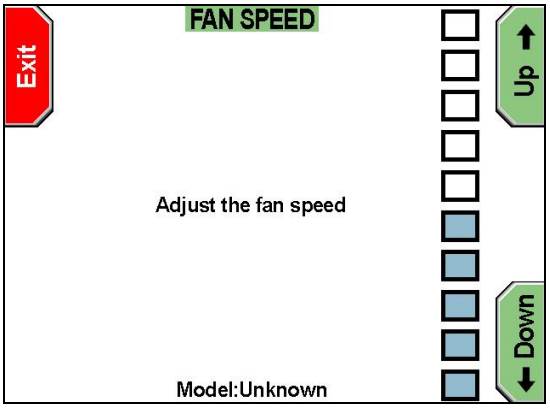


Press **MENU** > **SYSTEM SETTINGS** > **Setup Input Devices (Radar, Siren, etc.)** > **Fan**.

The **FAN SPEED** screen is displayed.

Press the **Up⬆** & **Down⬇** keys to adjust the fan speed.

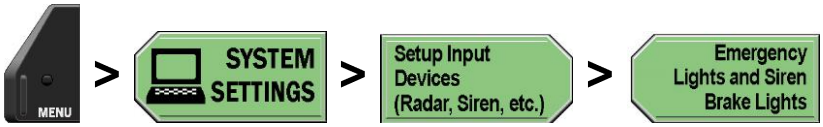
Press **Exit** when done.



4.6.3 Lights, Siren, and Brake Lights

These settings globally enable or disable the sensor inputs for lights, siren, brake lights, auxiliary input, and crash detection.

CAUTION!
Proceed carefully when changing these settings. If the Emergency Lights sensor input is set to **NO**, the DV-1 acts as if it is disconnected and won't respond to the emergency light sensor input. Each of the sensor inputs reacts the same way.



Press **MENU** > **SYSTEM SETTINGS** > **Setup Input Devices (Radar, Siren, etc.)** > **Emergency Lights and Siren Brake Lights**.

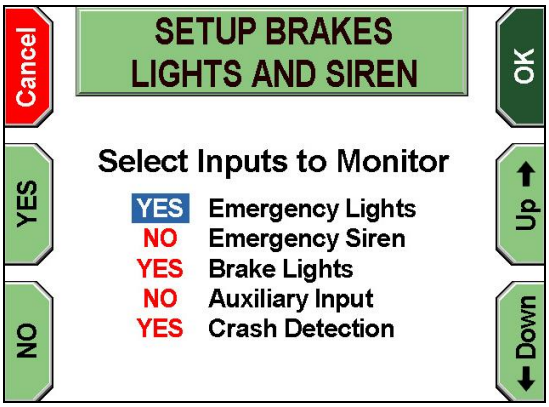
The **SETUP BRAKES, LIGHTS, AND SIREN** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to select the input setting.

Press **YES** or **NO** for each setting you wish to change.

YES sets the input to be monitored. **NO** sets the input to NOT be monitored.

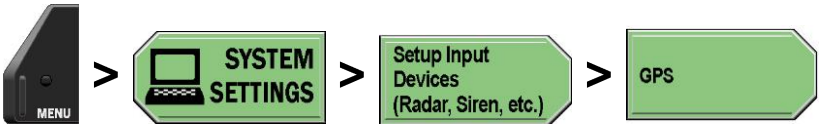
Press **OK** to confirm, or **Cancel** to exit without making changes.



4.6.4 GPS Setup

If your system has been equipped with the optional GPS receiver, there will be a GPS antenna connector on the back of the system, and you will have the ability to set the GPS to begin monitoring the receiver. A GPS antenna is shown on the right.

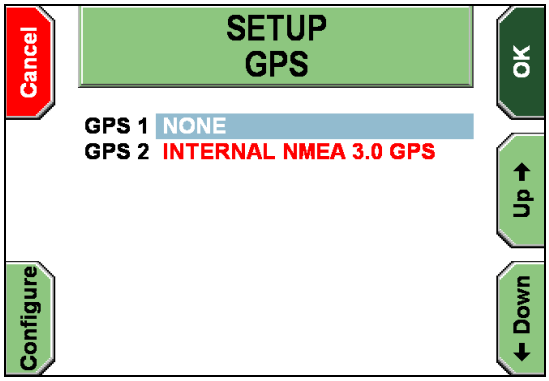
In order for the GPS system to track satellites and provide data to the DV-1, the GPS antenna needs to be installed where it has a clear view of the sky.



Press **MENU** > **SYSTEM SETTINGS** > **Setup Input Devices (Radar, Siren, etc.)** > **GPS**.

The **SETUP GPS** screen is displayed.

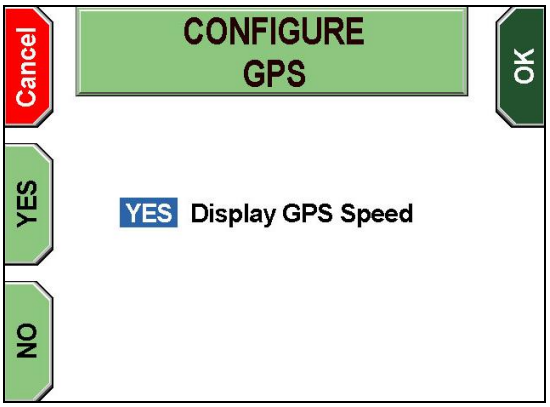
Press the **Up**⬆ & **Down**⬇ keys to select the **INTERNAL NMEA 3.0 GPS** or whichever model is installed. Press the **Configure** key.



The **CONFIGURE GPS** screen is displayed.

Press the **YES** or **NO** keys to choose whether you want GPS speed displayed on-screen.

Press **OK** to confirm, or **Cancel** to exit without making changes.



4.6.5 Temperature Sensor

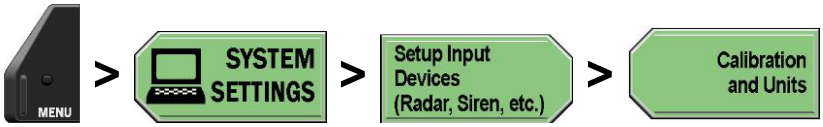
CAUTION!

The temperature sensor was calibrated at the factory during manufacturing. Temperature sensor calibration *may* be necessary; however, it should only be performed when instructed by Customer Service personnel.

U.S. customers, call 1-800-605-6734 or email customerservice@watchguardvideo.com prior to selecting this option. International customers, contact your local distributor.

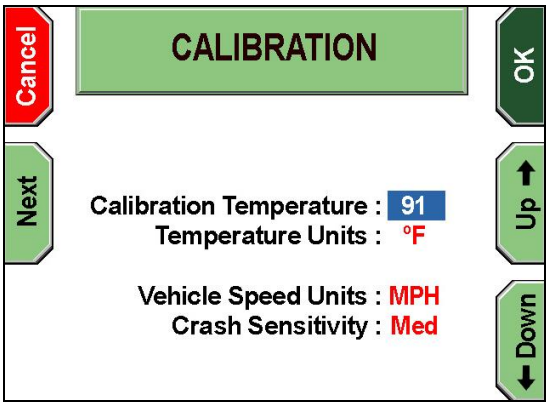
4.6.5.1 Adjusting the Calibration

The objective of the calibration process is to match a temperature for the sensor when the system's internal temperature would be the same as a known external temperature. This calibration is best performed when the system is cool (i.e., no sun exposure). Some DV-1 units calibrate automatically, and therefore, this option is not available on those systems.



Press **MENU** > **SYSTEM SETTINGS** > **Setup Input Devices (Radar, Siren, etc.)** > **Calibration and Units**.

The **CALIBRATION** screen is displayed.



Press **Next** to move the cursor to the next setting. Press the **Up**⬆ & **Down**⬇ keys to change the selected setting:

- **Calibration Temperature** *(DV-1A only)* – Typically set to about 12°C (22°F) above the ambient temperature
- **Temperature Units** – Either F (Fahrenheit) or C (Celsius)
- **Vehicle Speed Units** – Either Miles Per Hour (MPH) or Kilometers Per Hour (KPH)
- **Crash Sensitivity** – Either Low, Medium, or High

NOTICE
The **Crash Sensitivity** setting may not be displayed on some systems.

Press **OK** to save the current calibration, or **Cancel** to exit without making changes.

4.7 RECORDING SETUP

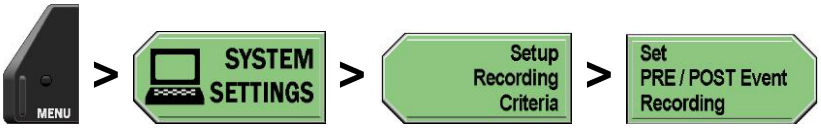
4.7.1 Pre- and Post-Event Recording

Supervisor access is required unless the **Set Pre/Post Event Times** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

The DV-1 features *Pre-* and *Post-Event* recording capabilities, which cause the system to automatically add up to ten minutes of video footage before and/or after a recorded event.

NOTICE
No audio is recorded during the Pre-Event period unless the microphones were previously turned on.

4.7.1.1 Set Pre-Event Time



Press **MENU** > **SYSTEM SETTINGS** > **Setup Recording Criteria** > **Set PRE/POST Event Recording**.

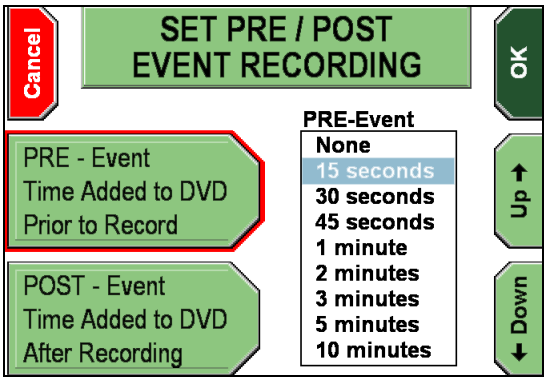
If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SET PRE/POST EVENT RECORDING** screen is displayed. The red outline highlights which soft function is active.

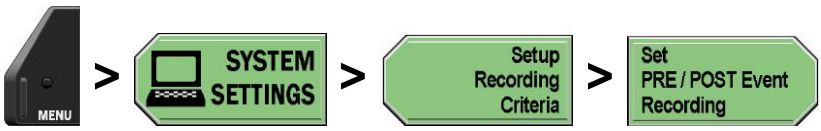
The **PRE-Event Time Added to DVD Prior to Record** key is highlighted by default.

Press the **Up⬆** & **Down⬇** keys to select the amount of Pre-Event time to be added to the DVD.

Press **OK** to confirm, or **Cancel** to exit without making changes.



4.7.1.2 Set Post-Event Time



Press **MENU** > **SYSTEM SETTINGS** > **Setup Recording Criteria** > **Set PRE/POST Event Recording**.

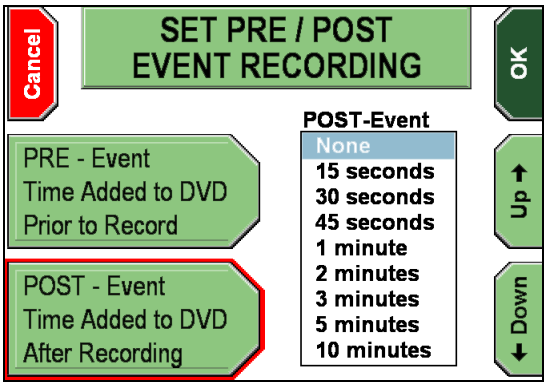
If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SET PRE/POST EVENT RECORDING** screen is displayed. The red outline highlights which soft function is active.

Press the **POST-Event Time Added to DVD After Recording** key.

Press the **Up⬆** & **Down⬇** keys to select the amount of Post-Event time to be added to the DVD.

Press **OK** to confirm, or **Cancel** to exit without making changes.



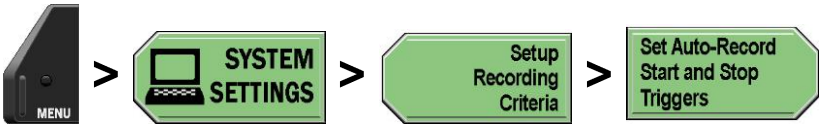
4.7.2 Auto-Record Trigger Setup

Supervisor access is required unless the **Manage Start/Stop Triggers** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

The DV-1 features Auto-Record Trigger capabilities, which allow recording to start based on certain start and stop triggers.

NOTICE
In order for recording to start based on a specific trigger, the input for that trigger must be monitored. See *Lights, Siren, and Brake Lights* on page 31 for further details.

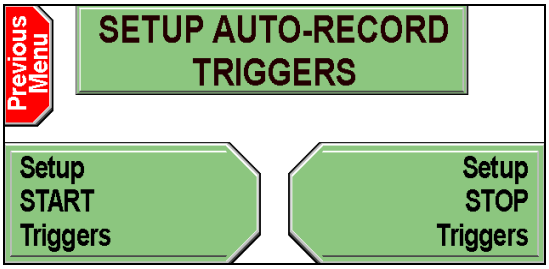
4.7.2.1 Setup START Triggers



Press **MENU** > **SYSTEM SETTINGS** > **Setup Recording Criteria** > **Set Auto-Record Start and Stop Triggers**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SETUP AUTO-RECORD TRIGGERS** screen is displayed.



Press **Setup START Triggers**.

The **SET AUTO-RECORD START TRIGGERS** screen is displayed.

Press the **Up⬆** & **Down⬇** keys to select the start trigger setting.

Press the **Change Value** key to toggle between **YES** and **NO** for the selected auto-record start trigger. Selecting **YES** instructs the DV-1 to begin recording automatically when that trigger is activated. Selecting **NO** means that automatic recording will not occur.

Press **OK** to confirm, or **Cancel** to exit without making changes.

NOTICE
The **Patrol Speed** trigger is only displayed if the GPS feature has been configured to have a value other than **NONE**. See *GPS Setup* on page 32 for information on setting up the GPS values.

4.7.2.1.1 Setup Patrol Speed Trigger

The **Patrol Speed** trigger needs a speed threshold to indicate when the trigger should occur. When the **Patrol Speed** trigger is toggled to **YES**, the **Change Speed** key is displayed on the bottom left.

Press **Change Speed**.

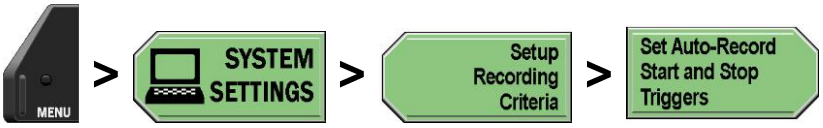
The **SET PATROL SPEED THRESHOLD** screen is displayed.

The **Patrol Speed** threshold can be set to any value from 1 to 150 MPH (1 to 240 KPH).

Press the **Up 10⬆** and **Down 10⬇** keys to adjust the speed threshold by increments of +/- 10. Press the **Up⬆** and **Down⬇** keys to adjust the speed threshold by increments of +/-1.

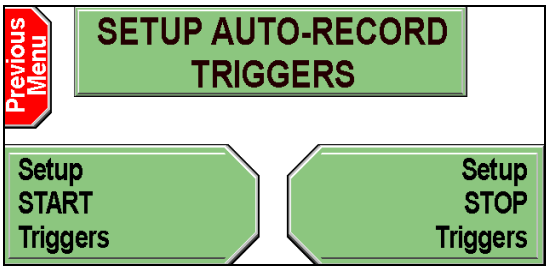
Press **OK** to confirm, or **Cancel** to exit without making changes.

4.7.2.2 Setup STOP Triggers



Press **MENU** > **SYSTEM SETTINGS** > **Setup Recording Criteria** > **Set Auto-Record Start and Stop Triggers**.

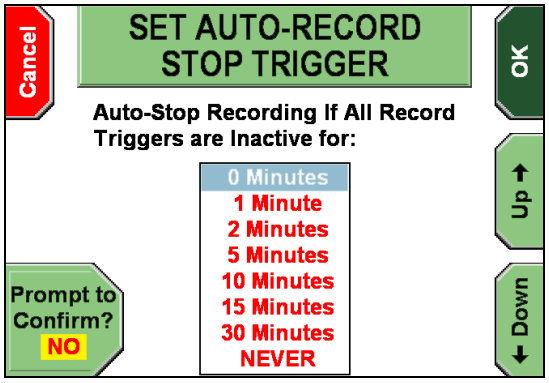
If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.



The **SETUP AUTO-RECORD TRIGGERS** screen is displayed.

Press **Setup STOP Triggers**.

The **SET AUTO-RECORD STOP TRIGGER** screen is displayed.



Press the **Up**⬆ & **Down**⬇ keys to set the amount of time that transpires between the time ALL auto-trigger devices become inactive and when the system ends recording. Selecting **NEVER** means that the system will not auto-stop recording based on inactive triggers.

Press the **Prompt to Confirm?** Key to select whether or not the system requests confirmation to end recording. Selecting **YES** instructs the DV-1 to request permission to end the recording. Selecting **NO** disables the prompt and automatically ends the recording as specified.

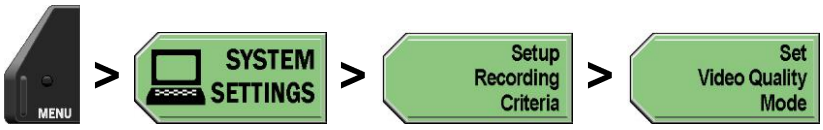
Press **OK** to confirm, or **Cancel** to exit without making changes.

NOTICE
The **Auto-Record Stop Trigger** only applies when a recording was initiated by one of the Start triggers. If a recording was manually started by pressing the **Record** key, it will not automatically be stopped or prompted by these auto-stop settings.

4.7.3 Set Video Quality

Supervisor access is required unless the **Set Video Quality** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

The DV-1 allows you select from multiple video quality levels.



Press **MENU** > **SYSTEM SETTINGS** > **Setup Recording Criteria** > **Set Video Quality Mode**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SETUP VIDEO QUALITY MODE** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to choose the quality mode you wish to select.

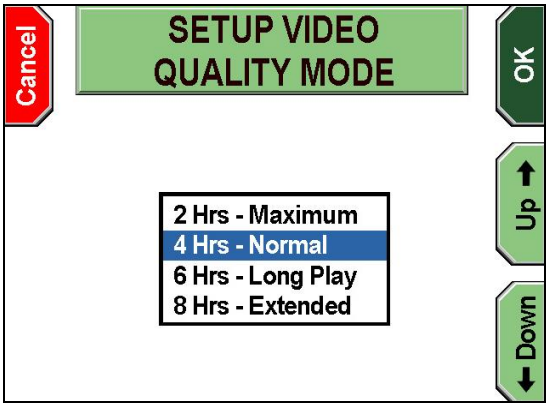


Table 5 Video Quality Mode Guide

Quality	Setting	Typical	Resolution
Maximum	2 Hour	2.0 Hours	720x480
Normal *	4 Hour	3.8 Hours	480x480
Long Play	6 Hour	5.5 Hours	352x480
Extended	8 Hour	7.5 Hours	352x480

* Indicates recommended setting

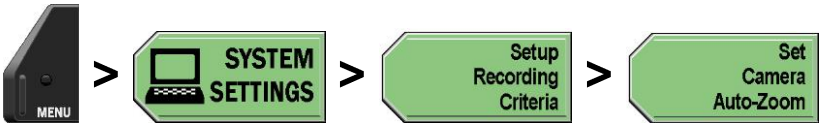
Press **OK** to confirm, or **Cancel** to exit without making changes.

NOTICE
Actual record times will vary because the data rate is not fixed. The DV-1 uses sophisticated *Variable Bit Rate* (VBR) encoding to maximize overall video quality. VBR causes the system to compress video more (using a lower data rate) when scenes are stationary, and compress video less (more data) when scenes are moving.

4.7.4 Set the Auto-Zoom

Supervisor access is required unless the **Set Camera Auto Zoom** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

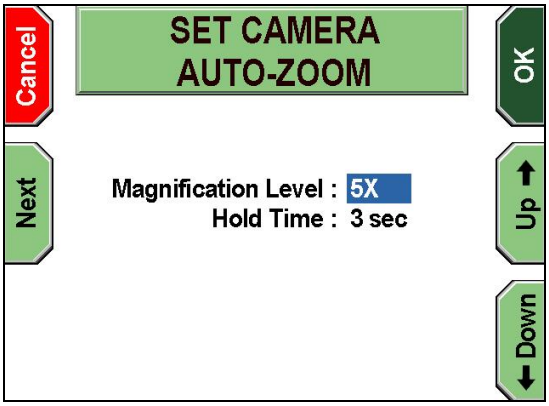
The **Auto-Zoom** feature allows the front camera to automatically zoom in on an object or subject for a set period of time, and then return to its previous zoom level. This is particularly useful for automatically zooming in on a vehicle license plate.



Press **MENU** > **SYSTEM SETTINGS** > **Setup Recording Criteria** > **Set Camera Auto-Zoom**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SET CAMERA AUTO-ZOOM** screen is displayed.



Press the **Up**⬆ & **Down**⬇ keys to select the desired setting.

Press the **Next** key to select between **Magnification Level** and **Hold Time**.

Press **OK** to confirm, or **Cancel** to exit without making changes.

On-screen terms are as follows:

- **Magnification Level** – Front Camera magnification setting, from 1X to 10X
- **Hold Time** – Amount of time the camera will hold the magnification before zooming back out to wide-angle view, from 1 second to 10 seconds

4.7.5 Manage On-Screen Text

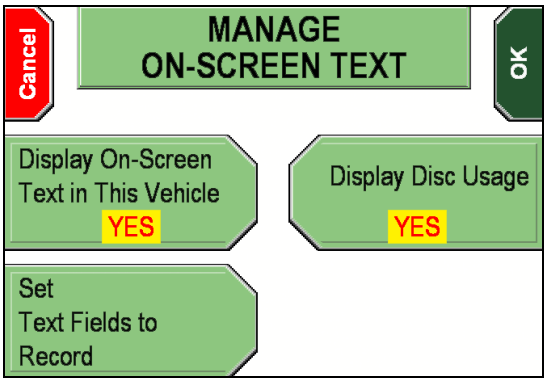
All on-screen text is sampled and generated once per second. The status of brakes, lights, siren, etc., generally lag behind the activation by 1-2 seconds in the on-screen display and in the DVD's *Closed-Captioning Layer*.

Press **MENU** > **SYSTEM SETTINGS** > **Manage On-screen TEXT**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **MANAGE ON-SCREEN TEXT** screen is displayed.

The three options are discussed in the sections below.



4.7.5.1 Display On-Screen Text in the Vehicle

From the **Manage On-Screen Text** screen, press **Display On-Screen Text in This Vehicle** to toggle between **YES** & **NO**. **YES** sets the system to show text on the DV-1's screen. **NO** sets the system to *not* show on-screen text.

NOTICE
Changing the **Display On-Screen Text in This Vehicle** setting **does not** affect what text information is recorded on the DVD in the *Closed-Captioning Layer*.

4.7.5.2 Display Disc Usage

From the **Manage On-Screen Text** screen, press **Display Disc Usage** to toggle between **YES** & **NO**. **YES** sets the system to show the disc usage meter on the DV-1's screen. **NO** sets the system to *not* show the disc usage meter.

NOTICE
Changing the **Display Disc Usage** setting **does not** affect what text information is recorded on the DVD in the *Closed-Captioning Layer*.

See *Disc Usage Meter* on page 52 for further details.

4.7.5.3 Set Text Fields to Record

Supervisor access is required unless the **Set Text Fields to Record** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

All metadata text fields are sampled and generated once per second. These selections affect the text recorded to the DVD's *Closed-Captioning Layer* as well as what displays on-screen.

From the **Manage On-Screen Text** screen, press **Set Text Fields to Record**.

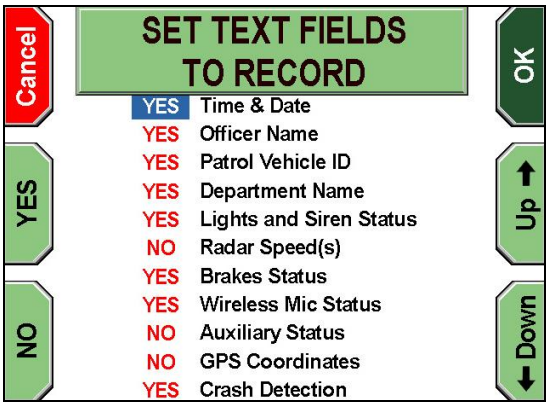
If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SET TEXT FIELDS TO RECORD** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to select the text field setting.

Press **YES** or **NO** for each setting you wish to change. **YES** sets the text field to be recorded. **NO** sets the text field to NOT be recorded.

Press **OK** to confirm, or **Cancel** to exit without making changes.



4.8 SAVE OR RESTORE OFFICER PREFERENCES

The DV-1 automatically creates a user profile with settings for each officer using the system. The settings included in this profile are:

- Brightness levels
- Volume levels
- Microphone selection
- Camera settings:
    - Night view
    - Back light compensation
    - Auto-Zoom magnification level and hold time
    - Camera selection
- Screen saver settings

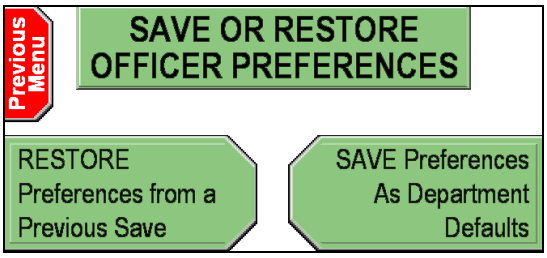
User profiles do not include behavior and permission settings controlled in the **Supervisor Menus**. When an officer makes a permissible change to any of their settings in the menu system, those changes are saved immediately.

4.8.1 Save Officer Preferences as Department Default

A Department Default profile can be saved which will be the preferences automatically assigned to new officers as they are added to the system. It also serves as the universal profile that any user can return to through the **RESTORE OFFICER PREFERENCES** screen.

Press **MENU** > **SYSTEM SETTINGS** > **Save or Restore Officer Preferences**.

The **SAVE OR RESTORE OFFICER PREFERENCES** screen is displayed.

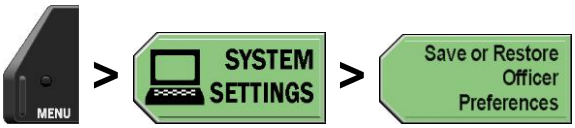


Press **SAVE Preferences As Department Defaults**.

The current officer's preferences are saved as the Department Default preferences.

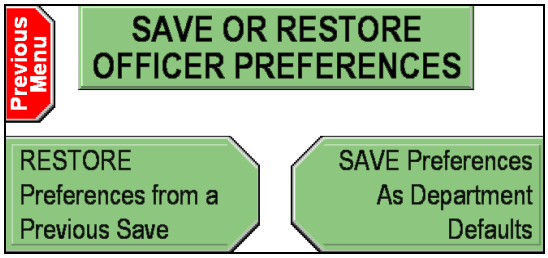
4.8.2 Restore Officer Preferences

Selecting an item in the list and pressing **OK** causes the selected preferences to immediately become the current officer's preferences. For example, if officer **A** is the currently selected officer in the system, and he chooses to restore preferences from officer **B**, then officer **A**'s preferences immediately become the same as officer **B**'s preferences.



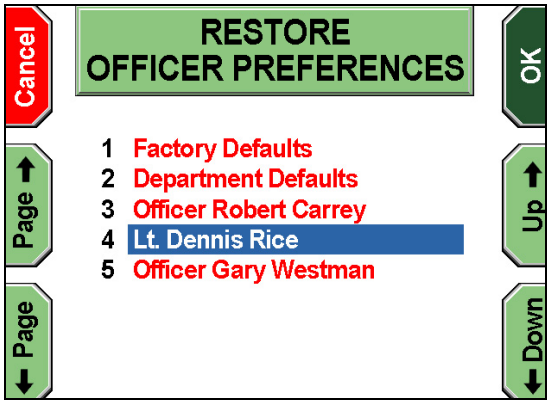
Press **MENU** > **SYSTEM SETTINGS** > **Save or Restore Officer Preferences**.

The **SAVE OR RESTORE OFFICER PREFERENCES** screen is displayed.



Press **RESTORE Preferences from a Previous Save**.

The **RESTORE OFFICER PREFERENCES** screen is displayed.



Press the **Up**⬆ & **Down**⬇ keys to select the preferences to restore. Press **Page** ⬇ & **Page** ⬆ to scroll to the next 10 officer names.

Press **OK** to confirm, or **Cancel** to exit without restoring any preferences.

5 Detailed DV-1 Operation

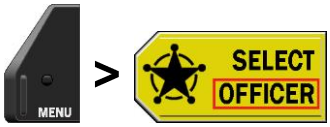
5.1 ABOUT DVD MEDIA

The DV-1 only records onto 4X-speed DVD+RW discs. Evidence-style blank DVDs are available through WatchGuard Video:

- Highest-quality **Sony®** or **Maxell®** 4X-speed DVD+RW blank media
- Bar code identifiers
- Unique serial numbers
- Boxed section for hand-written identifiers

5.2 SELECT OFFICER

Ensure that the correct **Officer Name** is selected prior to using the DV-1.



Press **MENU** > **SELECT OFFICER**.

NOTICE
The **Officer Name** can be displayed as on-screen text as well as recorded to the DVD's *Closed-Captioning Layer*. See *Manage On-Screen Text* on page 40 for further details.

The **SELECT OFFICER NAME** screen is displayed.

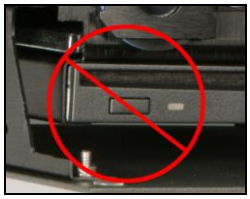
Press the **Up**⬆ & **Down**⬇ keys to choose the officer's name. Press **Page Dn** & **Page Up** to scroll to the next 10 officer names.

Press **Select** to select the officer's name.

See *Manage Officer Names* on page 26 for information on adding, deleting, or editing officer names.

5.3 EJECTING A DVD

CAUTION!
Do not use the **Manual Eject Button** on the DVD drive to eject discs because the system may not be done writing to the disc. Use only the **STOP/QUIT** key. Manually ejecting a DVD when the system has not finished burning files onto the disc may result in an unplayable DVD.



Before ejecting a DVD, the officer may use one of the following methods to ensure that the system has burned all pending files to the DVD:

- The *DVD Disc Information* screen (see page 126)
- The *DVD Status Icons* (see page 21)

If all recorded events show completed on the **DVD Disc Information** screen (e.g., **Completed Recordings: 9 of 9**) or the status icon shows a valid disc, and then the DVD can be ejected safely.

To eject a DVD, ensure that the drive door is unlocked, and then press and hold the **STOP/QUIT** key for at least 2 seconds.

The **CONFIRM EJECT** screen is displayed.

Press **YES** to eject the DVD, or press **NO** to exit and return to the main screen.

The message, **The DVD will be ejected when all pending video has been recorded** briefly displays on the screen.

Open the DVD drive door and wait for the system to automatically eject the DVD.

If the drive door is locked, **Open drive door** flashes across the screen. Using the key provided with the system, unlock and open the DVD drive door, and the system will eject the DVD automatically.

Holding the DVD from each side, remove it from the DVD drive slot and place in a protective sleeve or case. Insert a new DVD into the drive, close the DVD drive door, and lock it with the key.

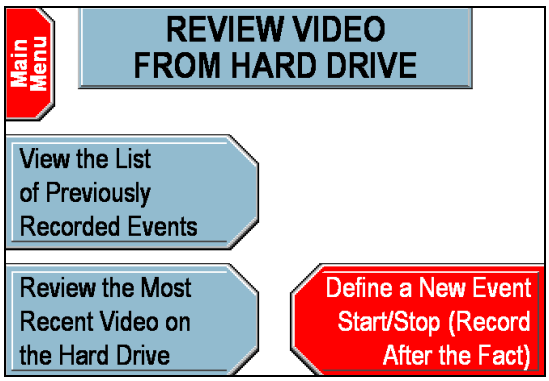
5.4 VIDEO REVIEW MODE

To playback recorded or buffered events on the hard drive, first enter **Video Review** mode from the **Main Menu**.

Press **MENU** > **VIDEO REVIEW**.

The **REVIEW VIDEO FROM HARD DRIVE** screen is displayed.

The three options are discussed in the sections below.



NOTICE
The DV-1 can playback events while simultaneously recording new events (both active or intentional recording plus background recording). However, the DVD drive will pause any burning activity while in **Video Review** mode.

5.4.1 Review the Most Recent Video on the Hard Drive

From the video review screen, press **Review the Most Recent Video on the Hard Drive**.

Use the *Video Control Keys* as described on page 48 to review the video on the hard drive.

5.4.2 Show/Hide Menu

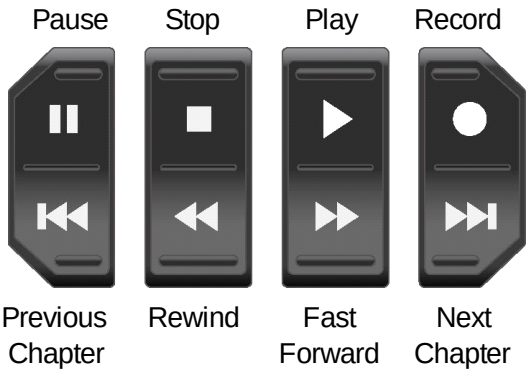
Press **Hide Menu** during playback to hide all graphical items and text, providing a better view of the recorded event. If menu and text have been hidden, press **Show** to display again.

5.4.3 Video Control Keys

Access **Video Review** mode as described in Section 5.4.1, and use the video control keys on the **Front Panel** to select and playback recorded events stored on the hard drive.

⏸	Pause
■	Stop playback; stop recording; eject DVD
⏵	Play
●	Record
⏮	Skip backward to the start of the previous chapter *
⏪	Rewind 60, 90, 120, or 180 seconds depending on the video quality
⏩	Fast-forward 60, 90, 120, or 180 seconds depending on the video quality
⏭	Skip forward to the start of the next chapter

* The Skip backward button must be pressed within five seconds of the start of the current chapter. If not, the review location only skips back to the start of the current chapter.

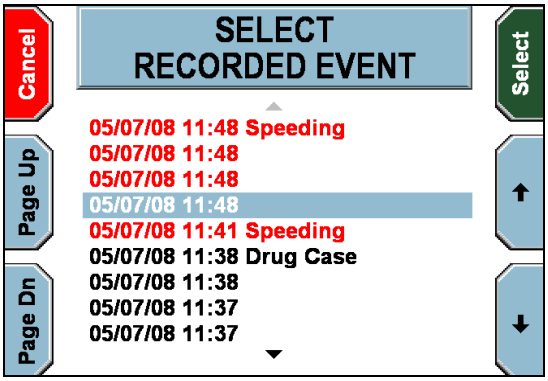


See *Automatic Event Segmentation* on page 51 for a description of how titles and chapters are segmented on a DVD.

5.4.4 View Previously Recorded Events

From the video review screen, press **View the List of Previously Recorded Events** to display a list of recorded events.

The **SELECT RECORDED EVENT** screen is displayed.



Press the ⬆ and ⬇ keys to highlight the recorded event to review. Press **Page Dn** & **Page Up** to scroll to the next 10 recorded events. Red items are editable and black items are not.

Press **Select** to review the recorded event's details and/or playback the recorded event.

Press **Cancel** to return to the video review screen.

The **RECORDED EVENT DETAIL** screen displays, showing details about the highlighted recorded event.

Press **Page Dn** to display additional details about the recorded event. Press **Play** to view the recorded event. Press **Reburn** to reburn this recorded event as a new event on the current DVD.

Press **Edit Tags** to edit the event tags for the recorded event displayed. This key is only available for recorded events that have event tags associated.

5.4.5 Define a New Event Start/Stop (Record After the Fact)

This option allows the officer to specify a start and stop time to define a new event. All available video between the two times becomes the next event on the DVD.

From the video review screen, press **Define a New Event Start/Stop (Record After the Fact)**.

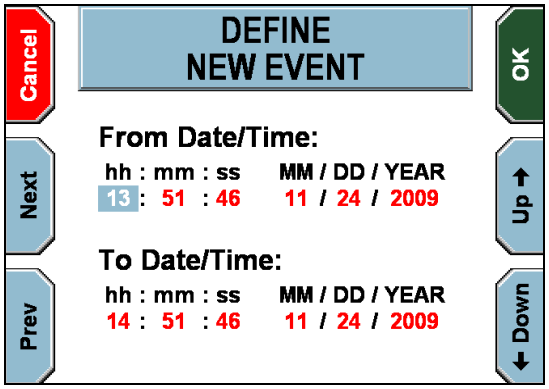
The **DEFINE NEW EVENT** screen displays.

Press **Next** and **Prev** to highlight the desired field to change.

Press the **Up**⬆ and **Down**⬇ keys to change the value.

Press **OK** to define the new event.

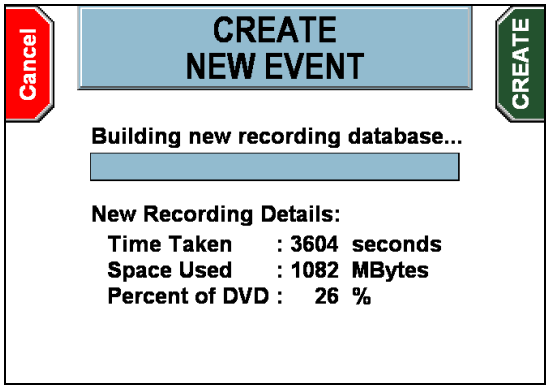
NOTICE
The video selected for the event follows the *Video Review Access Levels* as defined on page 82.



The **CREATE NEW EVENT** screen displays.

Press **CREATE** to create the new event.

If event tags are configured, the officer is then prompted for each event tag. See *Event Tags* on page 97 for further details.



5.5 RECORDING TO DVD

If the unit is on, it is automatically buffering video to the hard drive. When you press the **RECORD** key, it then begins recording to the DVD from that point in time forward. If a Pre-Event Time is set up, it will first burn that buffered amount of time onto the DVD and then catch up to near real-time. When the **STOP/QUIT** key is pressed, this ends an event (*title*) on the DVD.

The DV-1 can be set to record using various methods. The available methods for beginning or ending a DVD title are:

- Start Triggers (see *Setup START Triggers* on page 36):
  - Record key
  - Emergency lights activation
  - Emergency siren activation
  - Wireless microphone activation
  - Auxiliary trigger activation
  - Crash detection
- Stop Triggers (see *Setup STOP Triggers* on page 38)
  - **STOP/QUIT** key
  - Auto STOP trigger (timed)

NOTICE
If DVD capacity is reached while recording, the title is ended, but recording does not stop. The DVD is ejected, and the recording will continue onto the next DVD. See *Automatic Disc Overflow Recording* on page 54 for further details.

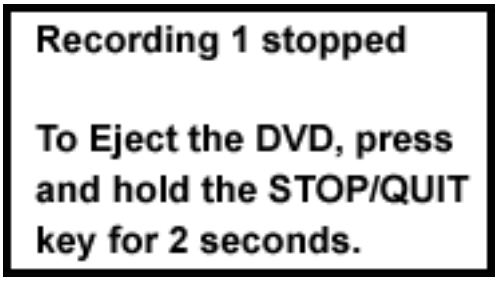
When actively recording, the **Front Panel** *RECORD* LED glows red, and the red LED by the camera lens is activated.

5.5.1 Stop Recording

Press the **STOP/QUIT** key to stop recording to DVD. Each recorded event creates a title on the DVD.

NOTICE
If the DV-1 has been configured to use event tags, the officer will be prompted to provide additional event details when ending a recording (pressing the **STOP/QUIT** key). See *Event Tags* on page 97 for further details.

The **Front Panel** *RECORD* LED is extinguished indicating that the DV-1 is no longer actively recording, and a message similar to the one at the right displays for 5 seconds. If event tags are configured, the first event tag prompt will be displayed instead of this message.



Note: The *Recording #* at the top is the number of the recording on the DVD. When a new DVD is inserted, the numbering restarts at 1.

5.5.2 Automatic Event Segmentation

Each recording, no matter the length, is represented by a single navigable *title* on the DVD (represented by a thumbnail as shown on the right). A title is further subdivided into up to 30-minute *chapters*. For example, on a 75-minute recording, there is only 1 thumbnail on the DVD title menu. However, the title will contain 3 chapters: 30 minutes, 30 minutes, and 15 minutes in length.

When playing the title, the user may skip to the next chapter, which skips ahead 30 minutes into the title.

When a record trigger is activated, the system begins a new title.

When a stop trigger is activated, the system completes the title.

NOTICE
If the system has been set to capture Pre-/Post-Event video, this video is included as a part of that title.

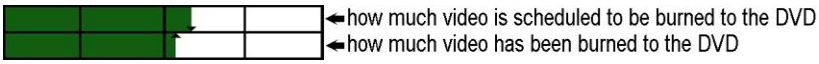
5.5.3 Scenarios Where DVD Burning is Halted

The system stops burning to the DVD and displays the icon on the right in the following situations:

Reason DVD Stops Burning	DVD Status Icon
The DVD drive's temperature is out of range	
There is no DVD in the drive	
The media in the drive is not DVD+RW	
The DVD is full	
The DVD is being formatted	

5.5.4 Disc Usage Meter

The **Disc Usage Meter** shows graphically how much video has been recorded on the current DVD. The bar expands as video is recorded, with axis lines at 25%, 50%, and 75%.



The top bar shows how much video is scheduled to be burned to the DVD. The bottom bar shows how much of the scheduled video has been burned to the DVD. The bar is **green** until there are only 30 minutes available on the DVD.

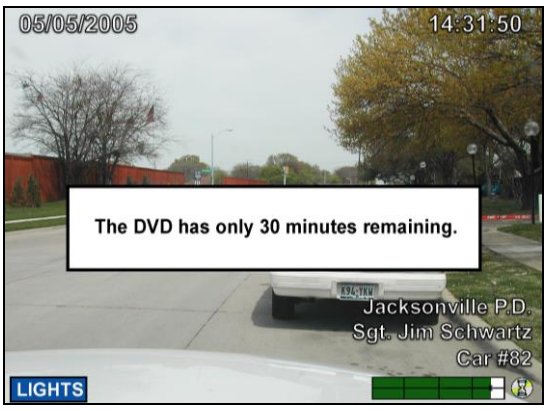
Green = > 30 minutes

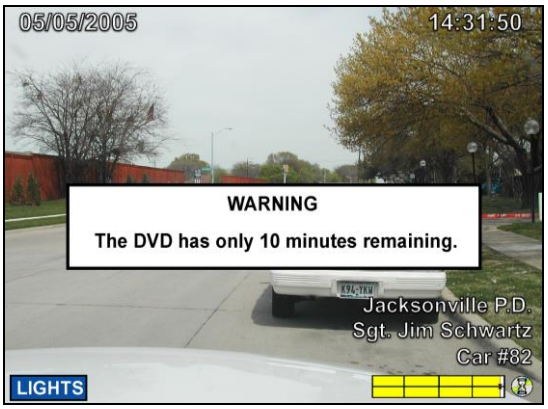
Yellow = ≤ 30 minutes

Red = ≤ 10 minutes

When the DVD has only 30 minutes remaining:

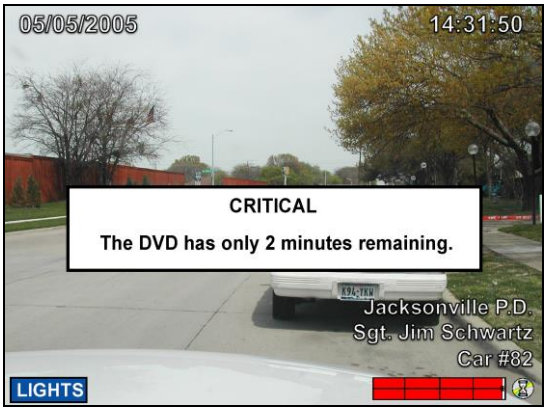
- An alert sounds and a warning message displays
- After the message disappears, the meter bar turns **yellow**
- The next recording is likely to overflow the current DVD causing part of the recording to be on the current DVD and the rest to be on the next DVD. Find a good stopping point and put a new disc in the DVD drive to continue recording onto the next DVD. After the low disc space warning has been displayed, it is good practice to insert a new disc prior to beginning another recording event. **Note**: Do not eject the first disc until the system has completed burning any scheduled video.





When the DVD has less than 10 minutes remaining:

- An alert sounds and a warning message is displayed
- After the message disappears, the meter bar turns **red**
- The *disc full* condition is imminent. Be prepared to insert a new DVD.



When the DVD has only 2 minutes remaining:

- An alert sounds and a warning message is displayed
- The disc usage meter bar remains **red**
- The *disc full* condition is critical and recording will overflow momentarily.

NOTICE
No video is lost if a recording overflows the current DVD capacity. The overflowed video is simply burned onto the next DVD.

5.5.5 Automatic Disc Overflow Recording

If a DVD fills to capacity while recording, the system automatically stores the overflow video on the hard drive. The overflowed video is added to the subsequent DVD as one or more new titles.

Example of a Disc Overflow Scenario

With only 30 minutes of space remaining on the current DVD, a traffic stop is initiated. The stop becomes a DUI arrest which lasts for 1 hour.

- The first 30 minutes of the event are burned onto the first DVD. This fills the disc, and no more video is added to that disc. A **Disc is Full** message begins to flash on the screen.
- The system continues recording the DUI stop (without missing a second of video) by queuing the overflow video onto the hard drive. Do not press the **STOP/QUIT** key until it is time to stop recording the DUI event.
- The officer may open the drive door (which ejects the DVD) at any time after the **Disc is Full** message is displayed. This can be done after the event has concluded or while the event is still being recorded.
- Insert a new DVD and format it by pressing **YES**. The 30 minutes of overflow video are added to the 2nd DVD as a new title.

Disc Overflow Scenario that Spans Multiple DVDs

If a system is placed into record and left unattended for a very long time, or the system has been operating without a DVD for a long time, it is possible to overflow the recording beyond the capacity of a 2nd DVD. The system can overflow up to 6 entire DVDs worth of video. The number of discs that can overflow is the number of DVD backups that are configured. See *Set Number of DVDs to Backup* on page 86 to configure this number.

When overflow video spans more than one DVD, the DVD Status Icon on the screen displays a number shown on top of the DVD icon (a number from 1 to 6). This number represents the total number of DVDs required to catch up.

For example, if the icon shows a DVD with the number 2, this means that over 2 complete DVD's worth of video has overflowed, and it is currently queuing video for a 3rd disc.

The DV-1 always burns the oldest overflow disc first.

5.5.6 Covert Mode

The purpose of **Covert Mode** is to allow the officer to secretly record activities without suspects in the vehicle being aware that they are being recorded.

To enter **Covert Mode**, press and hold the **Power On** key for 3 or more seconds. The following occurs:

- An initial beep is heard when the **Power On** key is pressed
- Continue to hold the **Power On** key until a second, lower tone beep is heard.
- Release the key and **Exiting normal operating mode...** displays on the screen
- Another set of beeps is heard and the system screen goes black
- Sounds and lights are turned off on the system
- The system changes to a split-screen view of the front and cabin cameras
- The live (wireless) microphone is muted and the cabin microphone is turned on
- Recording starts

To exit **Covert Mode**, press the **STOP/QUIT** key. The recording continues and the screen remains in split-screen view. Press the **STOP/QUIT** key again to stop recording.

NOTICE
Covert Mode differs from *Dark Mode* (see page 57). **Dark Mode** only temporarily turns off the system display and LEDs. It does not automatically start recording, nor does the system go into split-screen view, as it does in **Covert Mode**.

5.6 SPLIT-SCREEN DISPLAY

With the split-screen feature, the DV-1 can simultaneously display and record images from two cameras. When a split screen image is displayed and recording is triggered, both images are recorded on the evidence DVD.

The following illustration is an example of a split-screen view using the **Combination Camera**. In this example, the top half of the screen displays the view through the windshield, while the bottom half displays the cabin view (or the rear camera view, if equipped). The camera views shown on the display screen are always the same as what is being recorded. The **Front Camera** is always displayed on the top of the split-screen.

See *Camera Key* on page 61 to select the views to display and record.

5.7 CLOSED-CAPTIONING TEXT ON DVD PLAYBACK

All of the DV-1's textual information (metadata) is saved on the DVD in a format called the *Closed-Captioning Layer*. The advantages of using the *Closed-Captioning Layer* for displaying this information are:

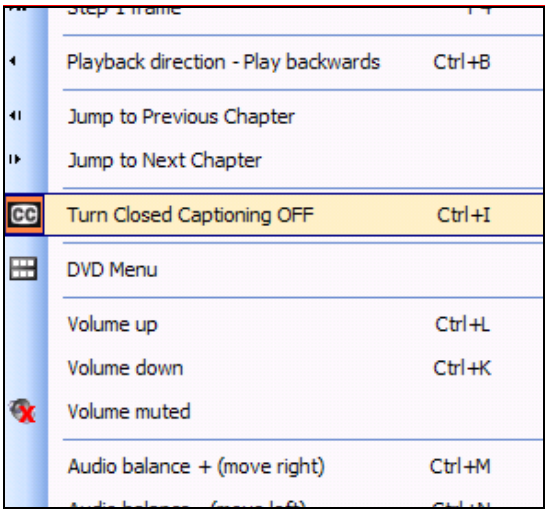
- Text display is crisp and readable
- Text can be turned on or off during playback so the video image is not permanently obscured

Each *field* (black-boxed section) is displayed only when data is present. For example, if the radar is not connected or active, the box for radar data is not shown on-screen.

NOTICE
Closed-Captioning is generally handled by the television set (not the DVD player). Follow your television manufacturer's instructions for activating this feature. If your television provides multiple closed-captioning formats, choose the **C1** format. *C1 Format Closed-Captioning* is required to display text during playback.

5.7.1 DVD Manager Utility (DMU)

The WatchGuard Windows application called *DVD Manager Utility* (DMU) is designed to play or copy evidence DVDs. Closed-captioning can be toggled on or off in DMU by selecting the option shown on the right from the **Tools** menu.



Documentation for all versions of the DMU is on the web at http://watchguardvideo.com/support

See *Software Programs for Playback* on page 66 for further details on the DMU application.

5.8 FRONT PANEL CONTROLS

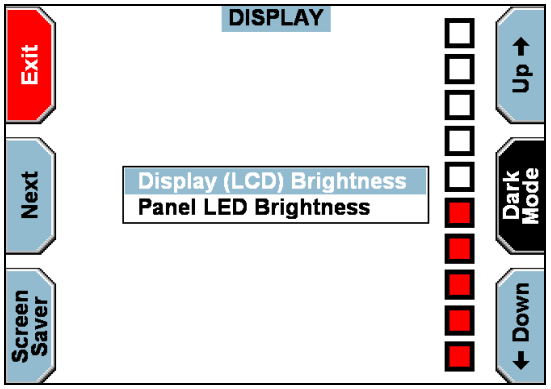
5.8.1 Display Key

CAUTION!
Display brightness levels may be adjusted down to off. Once the display is turned off, the operator can no longer view the menu system. Press any of the *soft* keys to return the display to normal.

Press the **DISPLAY** key on the **Front Panel**.

The **DISPLAY** screen is displayed.

Press the **Next** key to switch between display or panel brightness. Press the **Up**⬆ & **Down**⬇ keys to set the brightness level for the selection.



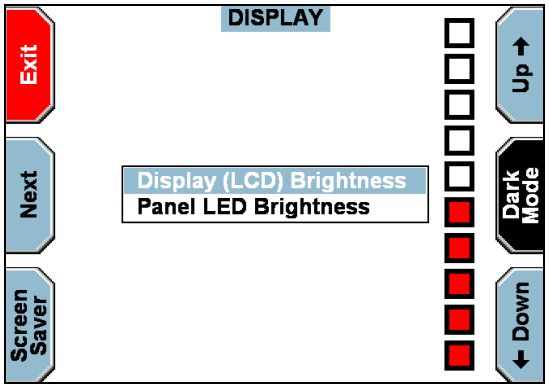
5.8.1.1 Dark Mode

Dark Mode allows the system display and LEDs to be temporarily switched off.

Press the **DISPLAY** key on the **Front Panel**.

The **DISPLAY** screen is displayed.

Press **Dark Mode** to temporarily turn off the display and LED indicators on the **Front Panel**. Press any key to turn the display and LEDs back on. The *Screen Saver* is discussed in the section below.



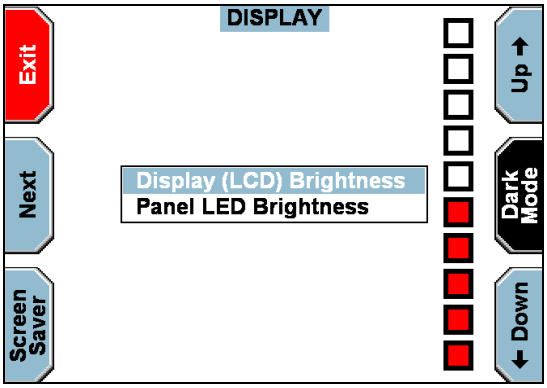
NOTICE
Dark Mode differs from *Covert Mode* (see page 55). **Dark Mode** only temporarily turns off the system display and LEDs. It does not automatically start recording, nor does the system go into split-screen view, as it does in **Covert Mode**.

5.8.1.2 Screen Saver

The screen saver functionality can be configured to be disabled, active all the time (day and night), or active only during night view mode (night only).

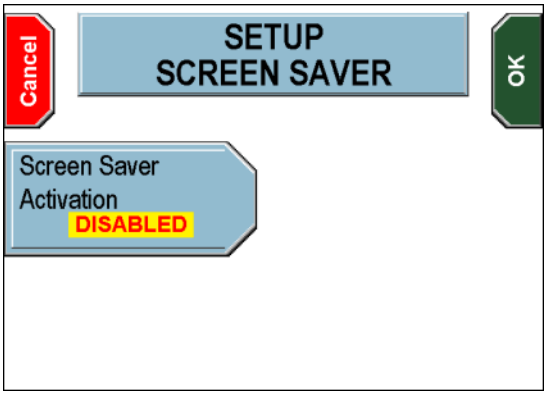
Press the **DISPLAY** key on the **Front Panel**.

The **DISPLAY** screen is displayed.



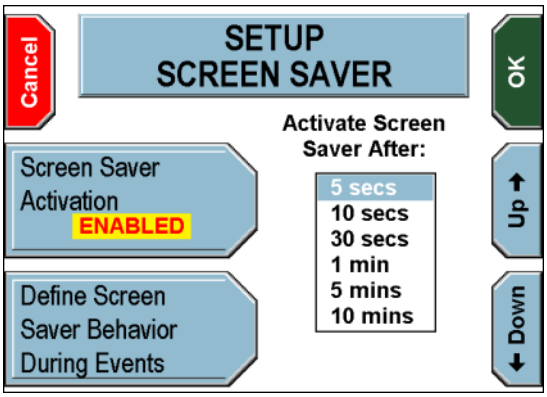
Press **Screen Saver**.

The **SETUP SCREEN SAVER** screen is displayed.



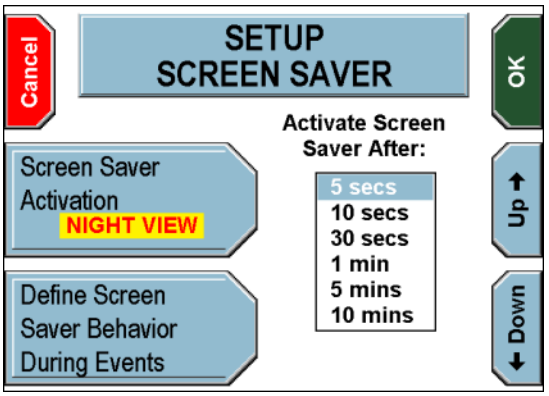
Press the **Screen Saver Activation** key until **DISABLED** is displayed, to configure the screen saver to never activate.

Press the **Screen Saver Activation** key until **ENABLED** is displayed, to configure the screen saver to always activate (day and night), after the specified time interval.



Press the **Up**⬆ and **Down**⬇ keys to set the desired amount of time until the screen saver activates.

Press **OK** to confirm, or **Cancel** to exit without making changes.



Press the **Screen Saver Activation** key until **NIGHT VIEW** is displayed, to configure the screen saver to activate only during night view mode (night only), after the specified time interval.

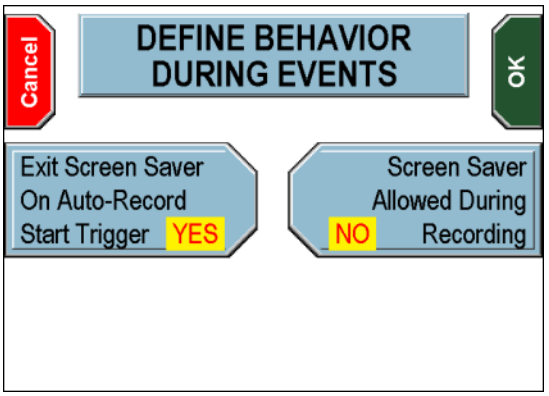
Press the **Up**⬆ and **Down**⬇ keys to set the desired amount of time until the screen saver activates at night.

Press **OK** to confirm, or **Cancel** to exit without making changes.

NOTICE
Users cannot configure different screen-saver behavior for day and night modes. The only options are never active, active all the time, or active only at night.

Press the **Define Screen Saver Behavior During Events** key to define how the screen saver behaves when a trigger causes a recording to start.

The **DEFINE BEHAVIOR DURING EVENTS** screen is displayed.



Press the **Exit Screen Saver On Auto-Record Start Trigger** key to indicate whether the unit automatically exits the screen saver when a recording is triggered. Selecting **YES** causes the screen saver to deactivate when a recording is triggered. Selecting **NO** keeps the screen saver active even though a recording has been triggered.

Press the **Screen Saver Allowed During Recording** key to indicate whether an active screen saver is allowed while the unit is recording. Selecting **YES** allows the screen saver to activate while the unit is recording. Selecting **NO** causes the screen saver to NOT activate while the unit is recording.

Press **OK** to confirm, or **Cancel** to exit without making changes.

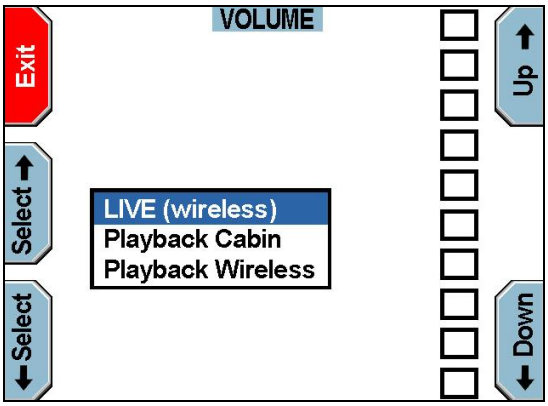
5.8.2 Volume Key

CAUTION!
High volume levels for the **LIVE (wireless)** setting may result in feedback between the speakers and the wireless microphone.

Press the **VOLUME** key on the **Front Panel**.

The **VOLUME** screen displays.

Press the **Select⬆** & **Select⬇** keys to choose between **LIVE (wireless)**, **Playback Cabin**, or **Playback Wireless**.



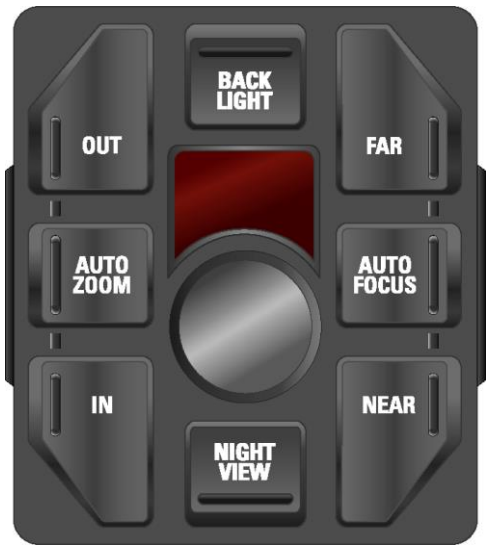
Press the **Up⬆** & **Down⬇** keys to set the volume level for one or more of the following selected items:

- **LIVE (wireless)** – Adjusts live feedback from the wireless microphone. This allows someone in the vehicle to monitor a live conversation transmitting from the wireless microphone. This should normally be set to the minimum.
- **Playback Cabin** – Adjusts volume of the cabin microphone when reviewing recorded video. Does not affect microphone sensitivity
- **Playback Wireless** – Adjusts volume of the wireless microphone when reviewing recorded video.

Press **Exit** when finished.

5.8.3 Camera Key

or



The DV-1 can operate up to 3 cameras:

- **Front Camera** – Main windshield-view zoom camera
- **Cabin Camera** – Backseat-view camera
- **Rear/Auxiliary Camera** – Optional and may have zoom capability

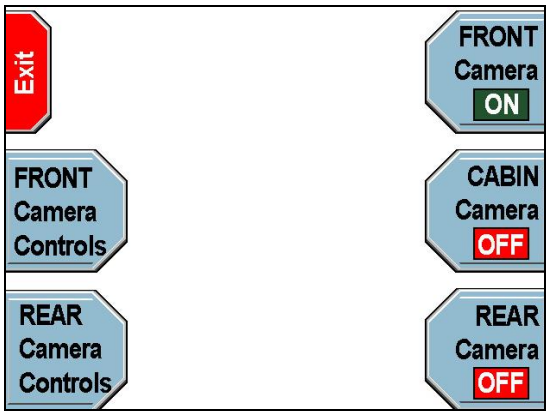
The system automatically senses which cameras are installed and provides controls in the **Camera Menu** accessible from the **Front Panel**.

The standard **Combination** camera consists of the **Front** and **Cabin** cameras which are built into the same enclosure. It includes **Camera Keypad** controls on the camera back which control only the **Front** camera. The **Cabin** camera has a fixed, wide-angle lens, and it does not include any manual controls.

The optional **Rear/Auxiliary Camera** is controlled exclusively through the **Camera Menu** on the **Front Panel**.

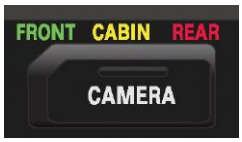
Press the **CAMERA** key on the **Front Panel**.

The **Camera Menu** is displayed.



A list of available cameras is displayed on the right side of the screen. Press the corresponding key to the right of the key label to turn the desired camera **ON** or **OFF**.

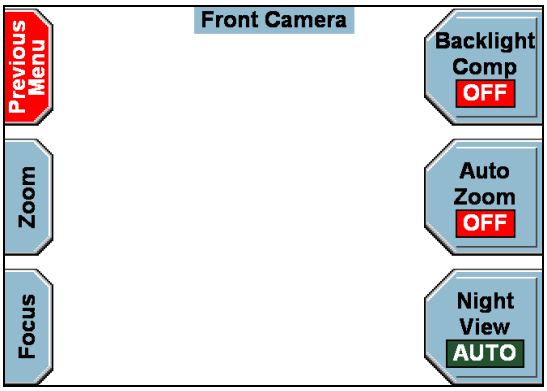
Only two cameras can be displayed on-screen at once. The **Front c**amera is always favored. For example, if the **Front c**amera and **Cabin c**amera are both **ON**, and the **Rear/Auxiliary c**amera is selected, the **Cabin c**amera is turned **OFF**.



LED indicators above the **CAMERA** key indicate the currently active cameras. The LED is **green** for the **Front c**amera, **yellow** for the **Cabin c**amera, and **red** for the **Rear/Auxiliary c**amera.

Press the **FRONT Camera Controls** or the **REAR Camera Controls** key.

The **Front Camera** or **Rear Camera** screen is displayed. The **Front Camera** screen is shown at the right.

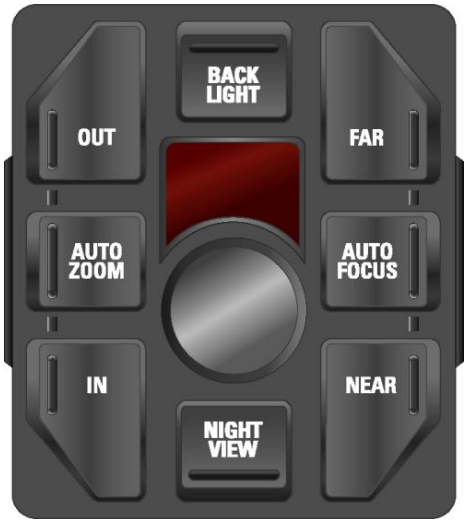


NOTICE
If no camera is connected to the rear camera port on DV-1 startup, or a third-party camera (e.g., a thermal imaging camera) is connected to the rear camera port, then there is no **REAR Camera Controls** key, and the text on the **REAR Camera** key is changed to **AUX Camera**.

5.9 FRONT CAMERA KEYPAD CONTROLS

The following **Camera Keypad** controls are available for the **Front** camera:

- **Backlight** – Brightens the overall exposure; compensates for darkening effect of sunrise, sunset, or bright lights in the background
- **Auto-Focus** – The camera focuses itself
- **Nightview** – Optimizes the camera settings for nighttime operation; Auto-Focus is turned off and the focus point is set to about 50 feet
- **Auto-Zoom** – Zooms to a preset level and holds zoom for a preset time
- **Out** and **In** – Manually controls the zoom
- **Far** and **Near –** Manually adjusts the focus



5.9.1 Back Light Compensation

The **Back Light Compensation** feature brightens the overall exposure when the subject in the foreground would otherwise appear dark due to strong back-lighting. It lightens the overall exposure to compensate for the darkening effect of sunrise, sunset, or bright lights in the background.

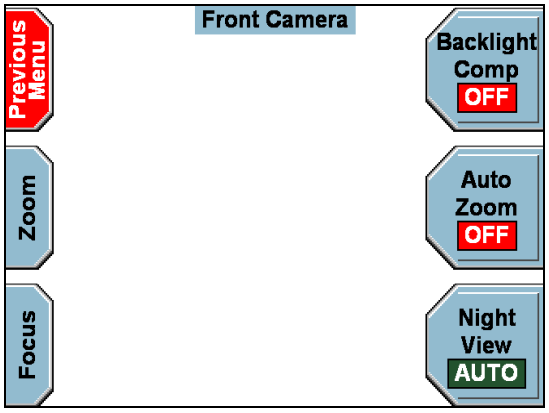
Press the **BACK LIGHT** key on the **Camera Keypad**.

A **Green** LED indicates that the feature is **ON** (active), and a **Blue** LED indicates the feature is **OFF** (inactive).

Alternatively, select either the **Front Camera** or the **Rear Camera** from the **Camera Menu** on the **Front Panel** (see *Camera Key* on page 61), and then press the **Backlight Comp** key to toggle between **ON** or **OFF**.

5.9.2 Night View

Activating **Night View** mode optimizes the camera settings for nighttime operation.



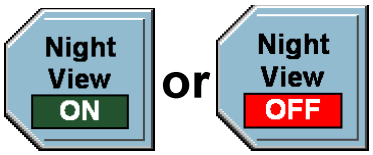
When **Night View** mode is turned on, the DV-1 automatically sets the manual focus to about 50 feet. When **Night View** mode is turned off, auto-focus is turned back on.

When set to **AUTO**, the system automatically turns **Night View** on when it gets dark (and manual focus is set to about 50 feet), and turns it back off when it gets light (and auto-focus returns).

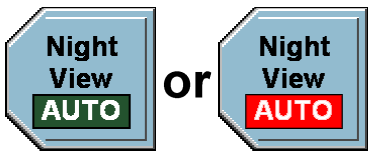
Press the **NIGHT VIEW** key on the **Camera Keypad**. It toggles between **ON**, **OFF**, and **AUTO**. When set to **AUTO**, the LED turns off for a couple of seconds, and then it will turn either blue or green depending on whether it is night or day.

A **Green** LED indicates that the feature is **ON** (active), and a **Blue** LED indicates the feature is **OFF** (inactive).

Alternatively, select either the **Front Camera** or the **Rear Camera** from the **Camera Menu** on the **Front Panel** (see *Camera Key* on page 61), and then press the **Night View** key to toggle between **ON**, **OFF**, or **AUTO**.



When set to **AUTO**, if the system determines that **Night View** is not needed, the background of the key turns from green to red.



Night View defaults to **AUTO** when the DV-1 is rebooted.

5.9.3 Auto-Zoom

The **Auto-Zoom** feature allows the camera to automatically zoom in on an object or subject for a set period of time, and then return to its previous zoom level. This is particularly useful for automatically zooming in on a vehicle license plate.

If the **AUTO ZOOM** key is pressed while the camera is operating in **Night View** mode, the camera will first activate **Auto-Focus**, wait a few seconds for the **Auto-Focus** to settle, and then begin the zoom sequence. After completing the **Auto-Zoom** sequence, the fixed focus position is reset back to around 50 feet.

Press the **AUTO ZOOM** key on the **Camera Keypad** to initiate the zoom sequence.

A **Green** LED indicates that the feature is **ON** (active), and a **Blue** LED indicates the feature is **OFF** (inactive).

See *Set the Auto-Zoom* on page 39 for details on setting the **Magnification Level** and **Hold Time**.

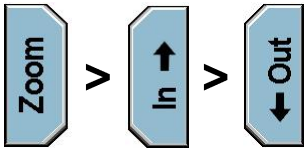
Alternatively, select either the **Front Camera** or the **Rear Camera** from the **Camera Menu** on the **Front Panel** (see *Camera Key* on page 61), and then press the **Auto Zoom** key to initiate the zoom sequence. The on-screen status displays **ON** during the zoom period, and then changes back to **OFF** when done.

5.9.4 Zoom (Manual)

Press and hold the **IN** and **OUT** keys which are located above and below the **AUTO ZOOM** key on the **Camera Keypad**.

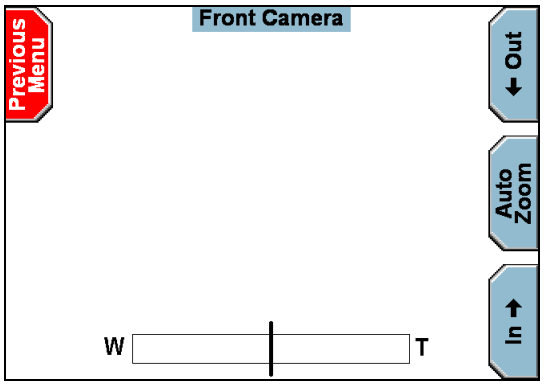
Alternatively, select either the **Front Camera** or the **Rear Camera** from the **Camera Menu** on the **Front Panel** (see *Camera Key* on page 61), and then press the **Zoom** key.

Press and hold the **In**⬆ & **Out**⬇ keys to control the zoom level.



The bar scale at the bottom of the screen indicates the magnification level of the current zoom setting. To the left of the vertical bar is the optical zoom area, and to the right is the digital zoom area. W is wide angle, and T is telephoto.

The scale indication takes several seconds to receive updated zoom positions from the camera.



5.9.5 Auto-Focus

The **Front Camera** uses a vari-focus lens system that maintains focus regardless of the magnification level.

Press the **AUTO FOCUS** key on the keypad to allow the camera to self-focus.

Alternatively, select either the **Front Camera** or the **Rear Camera** from the **Camera Menu** on the **Front Panel** (see *Camera Key* on page 61), and then press the **Auto Focus** key to allow the camera to self-focus.

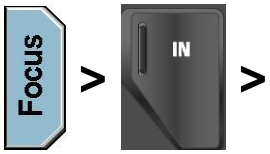
5.9.5.1 Manually Setting Focus

Use the **Camera Keypad** and zoom all the way in to an object at the desired distance.

Use the **Far** and **Near** keys to manually adjust the focus.

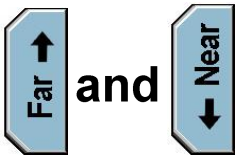
Zoom back out to a wide angle view, and the object will remain in crisp focus.

Alternatively, select either the **Front Camera** or the **Rear Camera** from the **Camera Menu** on the **Front Panel** (see *Camera Key* on page 61), and then press the **Focus** key.



With the **Focus** screen still displayed, use the **Camera Keypad** and zoom into an object at the desired distance.

From the **Front Panel**, use the **Far** and **Near** keys to manually adjust the focus.



Zoom back out to a wide angle view, and the object will remain in crisp focus.

5.10 PLAYBACK ON COMPUTERS AND DVD PLAYERS

Because of the DVD+RW format that is used in the DV-1, there is no need for disc finalization before playing back on a computer or DVD player. The DVDs that come out of the DV-1 are ready to play on your DVD player or computer. Evidence recorded in the car is the exact evidence that is brought into court.

5.10.1 Software Programs for Playback

WatchGuard's *DVD Manager Utility* is the recommended software program for playback. Documentation for all versions of the *DVD Manager Utility* is on the web at:
http://watchguardvideo.com/support

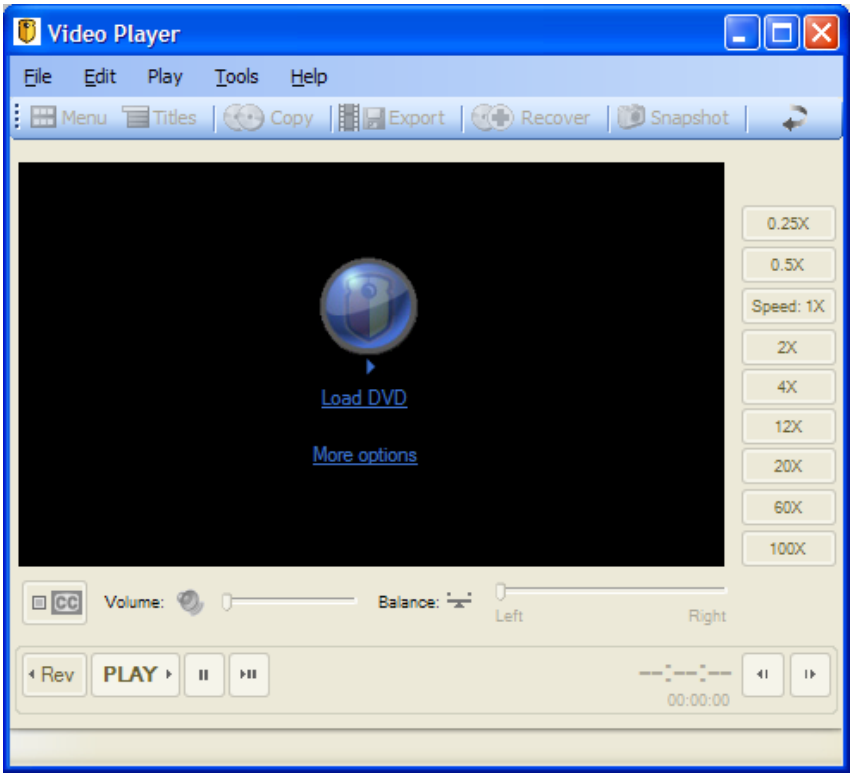
Some of the main advantages are:

- The ability to recover video from corrupted media
- Single-title copies
- Save video titles as MPEG-2 files

NOTICE
Other programs such as Windows Media Player and RealNetworks' RealPlayer may be utilized as well if the user chooses.

Below is the main window of the DMU. To play a DVD, click the **Play Video** button.

The **Video Player** screen is displayed. Click the **Load DVD** link in the center of the screen.



The DVD's main screen is displayed. Click a title to play it.

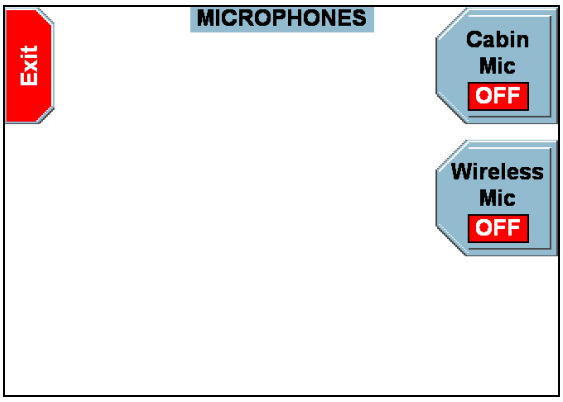
6 Cabin and Wireless Microphones

6.1 MICROPHONE MENU

There are several different types of microphones that may be included with the DV-1 system. For specific information on your particular microphone, please refer to the manufacturer's manual that is packaged with your microphone.

Press the **MICROPHONE** key on the **Front Panel**.

The **MICROPHONES** screen is displayed.



Corresponding LED indicators are lit above the **MICROPHONE** key on the **Front Panel** to indicate which microphones are active.

Press **Cabin Mic** to turn the cabin microphone **ON** or **OFF**.

Press **Wireless Mic** to turn the wireless microphone **ON** or **OFF**.

NOTICE
Officer may or may not have permission to turn off some or all microphones. See *Set Microphone Behavior* on page 80.

6.2 WIRELESS MICROPHONE SYNCHRONIZATION

Place the microphone transceiver in the docking base.

After a few seconds a tone indicates that the wireless microphone has synchronized with the system.

NOTICE
Any microphone transceiver can be synchronized with any microphone base; however, only one wireless microphone can be used with one microphone base at a time. To switch to a different microphone, place the desired transceiver into the docking base to synchronize it with the system.

6.3 LAPEL MICROPHONE PLACEMENT

The wireless microphone features an optional lapel microphone with a foam wind screen. For the best possible sound quality, place the lapel microphone as described below:

Placement #1: Clip the lapel microphone inverted near the center of the chest at least 12 inches away from the face. Placing the microphone too close to the face results in distorted audio and the microphone is less likely to pick up a suspect's voice.

Placement #2: Clip the lapel microphone near the center of the belt. Better sound balance from both the officer and the subject may be achieved by this placement.

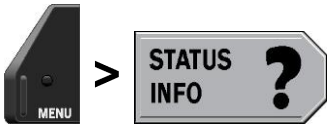
NOTICE
A microphone is built into the belt-pack transceiver. Therefore, a lapel microphone is not required nor included with the DV-1. When using a lapel microphone, should the lapel microphone be disconnected, the built-in microphone takes over. Since the built-in microphone does not have a wind screen, audio performance is degraded on windy days.

7 System Status Information Screens

7.1 STATUS INFORMATION OVERVIEW

The **Status Menus** display important system information about the DV-1. These screens are for informational purposes only and do not allow for any changes to system settings or functions.

7.2 DVD DISC, DRIVE, AND MEDIA INFORMATION



View DVD information by pressing **MENU** > **STATUS INFO**.

The **SYSTEM STATUS INFORMATION** – **DVD Disc Information** screen is displayed by default. There are up to three available information screens when you press the middle-left key, **DVD Disc Information**, **DVD Drive Information**, and **DVD Media Information** (if a DVD is present).

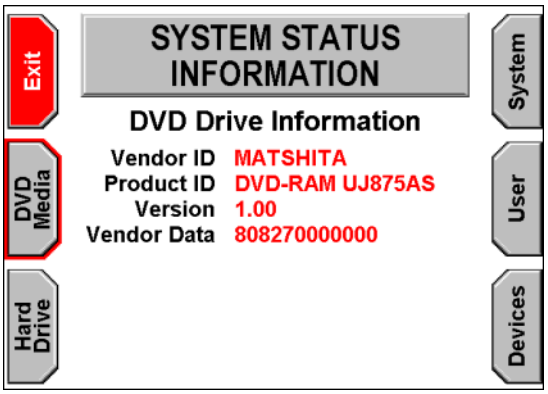
For the **DVD Disc Information** screen, the on-screen terms are:

- **Video Quality** – The quality of video set to record to the DVD (see *Set Video Quality* on page 39)
- **Record Time** – The estimated amount of time the DVD can hold based on the quality setting
- **Disc Usage** – The percentage of disc space that has already been allocated
- **Video Recorded** – The number of minutes of video already burned to the DVD
- **Time Left on Disc** – The estimated number of available minutes remaining on the disc
- **Un-Burned Video** – Buffered video data waiting to be transferred to the DVD
- **Recording State** – Indicates whether or not the system is currently in an active recording mode*
- **DVD State** – Displays the current step in the burning process
- **Completed Recordings –** Indicates how many titles have been recorded to the DVD

* If the system is set up to record Post-Event video (see *Set Post-Event Time* on page 35), the **Recording State** could show as **Recording** even after the **STOP/QUIT** key is pressed because the system is still recording for the remaining time of the Post-Event.

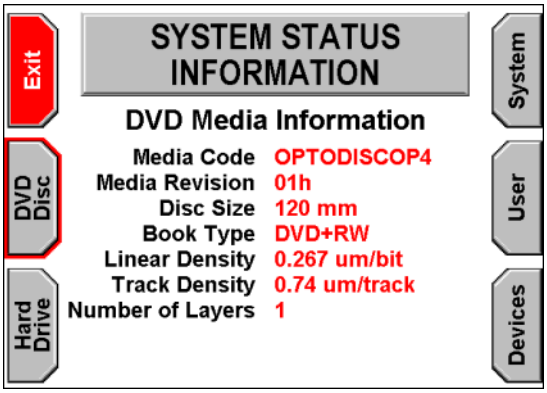
For the **DVD Drive Information** screen, the on-screen terms are:

- **Vendor ID** – The name of the DVD drive manufacturer
- **Product ID** – The model number of the DVD drive
- **Version** – The firmware version of the DVD drive
- **Vendor Data** – Data provided by vendors for their purposes; this field is not always used



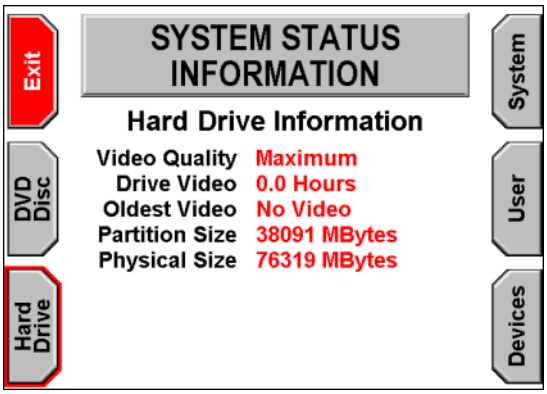
For the **DVD Media Information** screen (available only if a DVD is present), the on-screen terms are:

- **Media Code** – Identifies the manufacturer of the DVD and assists the DVD burner in using the best write strategy
- **Media Revision** – The revision of the DVD
- **Disc Size** – The physical dimension of the DVD
- **Book Type** – The type of DVD, for example, read only, read/write
- **Linear Density** – The amount of space used for one bit
- **Track Density** – The amount of space used for one track
- **Number of Layers** – The number of layers on the DVD (1 or 2)



7.3 HARD DRIVE INFORMATION

View hard drive information by pressing **MENU** > **STATUS INFO** > **Hard Drive**.



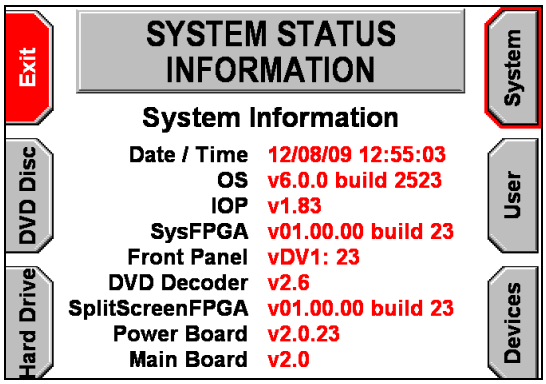
On-screen terms are as follows:

- **Video Quality** – The quality of resolution set to record to the hard drive
- **Drive Video** – The amount of time in hours recorded on the hard drive
- **Oldest Video** – The date and time of the oldest video on the hard drive
- **Partition Size** – The amount in MB of useable space on the hard drive
- **Physical Size** – The amount in MB of available space on the hard drive

NOTICE
By default, only 40 GB of the hard drive space is used. To format the drive to use all the available space, see *Format Hard Drive to Maximum Capacity* on page 111.

7.4 SYSTEM INFORMATION

View software and hardware versions by pressing **MENU** > **STATUS INFO** > **System**.



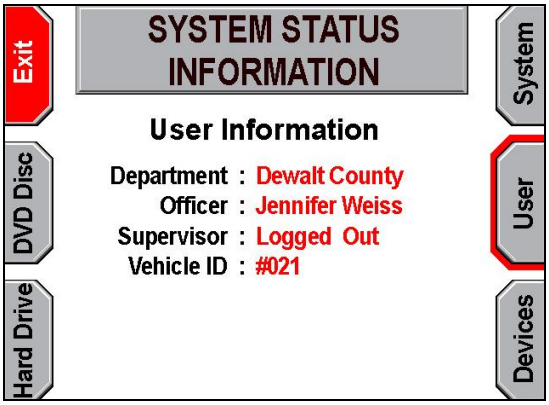
On-screen terms are as follows:

- **Date/Time** – The date and time currently set
- **OS** – Main system software version
- **IOP** – Software version of the I/O Processor
- **SysFPGA** – System FPGA version
- **Front Panel** – Keypad software version
- **DVD Decoder** – Decoder software version
- **SplitScreenFPGA** – Split-screen FPGA version
- **Power Board** – Power supply hardware version
- **Main Board** – Motherboard hardware version

Actual version information will likely be different than what is shown on the right.

7.5 USER INFORMATION

View user information by pressing **MENU** > **STATUS INFO** > **User**.

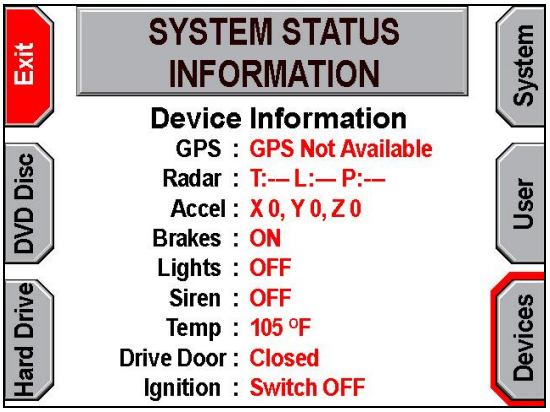


On-screen terms are as follows:

- **Department** – Name of agency
  (configured in *Set Department Name* on page 24)
- **Officer** – Officer name in use
  (configured in *Manage Officer Names* on page 26)
- **Supervisor** – Supervisor login status
  (discussed in *Supervisor and Administrator Login* on page 78)
- **Vehicle ID** – Vehicle ID number
  (configured in *Set Vehicle ID* on page 25)

7.6 DEVICE INFORMATION

View device information by pressing **MENU** > **STATUS INFO** > **Devices**.



On-screen terms are as follows:

- **GPS** – GPS status (configured in *GPS Setup* on page 32), including the latitude and longitude readings from the device if one is configured for the system
- **Radar** (configured in *Radar Setup* on page 30)
    - T=Target Speed
    - P=Patrol Speed
    - L=Locked Target Speed
    - F=Fastest Vehicle Speed
- **Accelerometer** – Reports the G-force in each of the 3 directions (X, Y, and Z) at the current time
- **Brakes*** – Brake status (ON = Pedal Depressed)
- **Lights*** – Light bar status
- **Siren*** – Siren status
- **Temp** – System temperature
- **Drive Door** – DVD drive door status
- **Ignition** – Ignition status

* Configured in *Lights, Siren, and Brake Lights* on page 31.

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8 Supervisor/Administrator Functions

8.1 SUPERVISOR/ADMINISTRATOR OVERVIEW

The DV-1 is configured with three permission levels: **User**, **Supervisor**, and **Administrator**. This enables departments to control who can use the features, change the configurations, or perform maintenance on the unit. See *Permission Levels* on page 17 for further details.

NOTICE
A **Supervisor PIN** number **MUST** be established before any Supervisor settings or controls can be accessed. See *Add Supervisor PIN* on page 89 for further details.

When an officer name is initially added to the system, they are simply a **User**. The system requests a PIN number when the officer is changed to a Supervisor.

Supervisor PIN numbers (passwords) can only be added, edited, and deleted by someone with an Administrator PIN number. There is only ONE Administrator PIN per agency.

***Any* Supervisor PIN** number can be used to access restricted screens regardless of the active officer name. There is no need to change the active officer to the Supervisor name. This allows a Supervisor to gain quick access to assist a non-Supervisor officer.

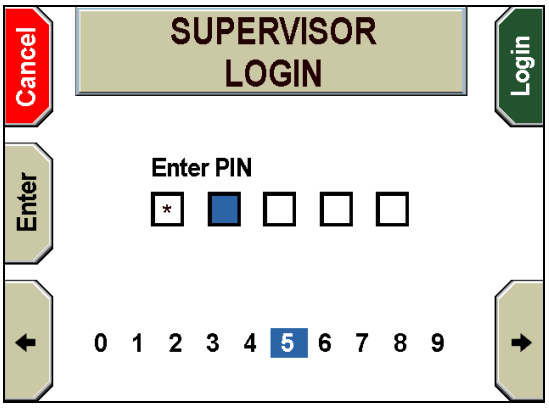
Some functions require a **Supervisor PIN** to access the selection. Others may require an **Administrator PIN**. The steps for entering a PIN number are the same in either case. The **SUPERVISOR LOGIN** screen is used in the following example for simplicity purposes.

NOTICE
The Supervisor is automatically logged out when exiting the **Main Menu**.

8.2 SUPERVISOR AND ADMINISTRATOR LOGIN

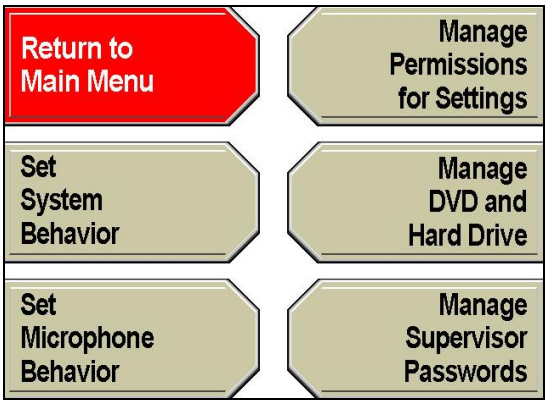
If you have not previously logged in as Supervisor, or if you have exited the **Main Menu** after being logged in as Supervisor, the system asks for a **Supervisor PIN** number when accessing the Supervisor Menu.

Press **MENU** > **SUPERVISOR MENU**.



Press the ⬅ and ➡ keys to navigate to the correct number, and then press **Enter** to select each number. If you enter an incorrect number, **Invalid PIN** is displayed and you must start over again.

Press **Cancel** before the fifth number is entered to exit without logging in. The **Login** key is automatically pressed when the fifth number is selected.



The **SUPERVISOR MENU** is displayed.

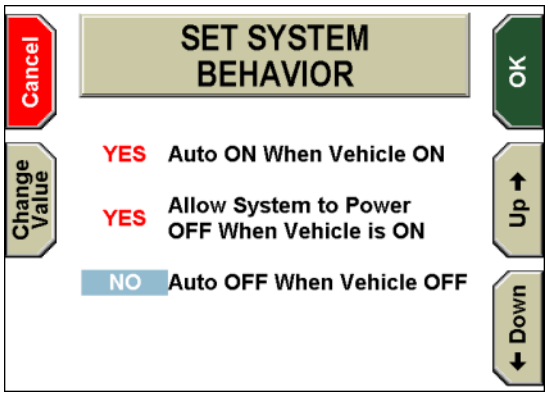
8.3 SET SYSTEM BEHAVIOR

System behavior settings control when the DV-1 system powers on or off based on vehicle on or off status.

Press **MENU** > **SUPERVISOR MENU** > **Set System Behavior**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **SET SYSTEM BEHAVIOR** screen is displayed.



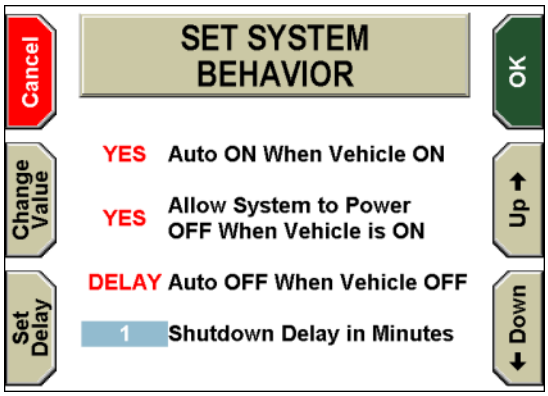
Press the **Up**⬆ and **Down**⬇ keys to select the behavior you want to edit. For a description of the System Behavior options, see the *Department Default Policies* table on page 103.

Press the **Change Value** key to toggle between values for the selected behavior. **YES** enables the behavior. **NO** disables the behavior. **DELAY** (applicable only for the **Auto OFF When Vehicle OFF** behavior) enables the behavior but allows you to configure a 1 to 60 minute delay before the system shuts down.

Press **OK** to confirm, or **Cancel** to exit without making changes.

8.3.1 Set Shutdown Delay

Auto OFF When Vehicle OFF can be configured with a 1 to 60 minute delay before the system shuts down.



Press the **Up**⬆ or **Down**⬇ key to select the **Auto OFF When Vehicle OFF** behavior, then press the **Change Value** key to toggle between values until **DELAY** is displayed next to **Auto OFF When Vehicle OFF**.

When **DELAY** is selected, the **Shutdown Delay in Minutes** value is displayed in another line.

Press the **Up**⬆ or **Down**⬇ key to select the **1** next to **Shutdown Delay in Minutes**, then press the **Set Delay** key.

The **SET SHUTDOWN DELAY** screen is displayed.

The **Shutdown Delay** can be set to any value from 1 to 60 minutes.

Press the **Up 10**⬆ and **Down 10**⬇ keys to adjust the delay time by increments of +/- 10. Press the **Up**⬆ and **Down**⬇ keys to adjust the delay time by increments of +/-1.

Press **OK** to confirm, or **Cancel** to exit without making changes.

8.4 SET MICROPHONE BEHAVIOR

Press **MENU** > **SUPERVISOR MENU** > **Set Microphone Behavior**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **MICROPHONE BEHAVIOR** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to select the behavior you wish to edit. For a description of the Microphone Behavior options, see the *Department Default Policies* table on page 103.

Press the **YES** & **NO** keys to set the behavior. **YES** enables the behavior. **NO** disables the behavior.

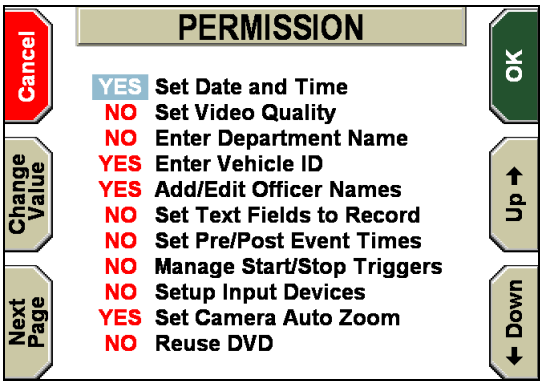
Press **OK** to confirm, or **Cancel** to exit without making changes.

8.5 MANAGE PERMISSIONS FOR SETTINGS

Each of these settings is used to allow (or not allow) an officer to configure/change a particular setting or behavior. If the permission is set to **NO**, a Supervisor password is required before accessing the associated configuration setting. If the permission is set to **YES**, no Supervisor password is required to access the associated configuration setting.

Press **MENU** > **SUPERVISOR MENU**.> **Manage Permissions for Settings**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

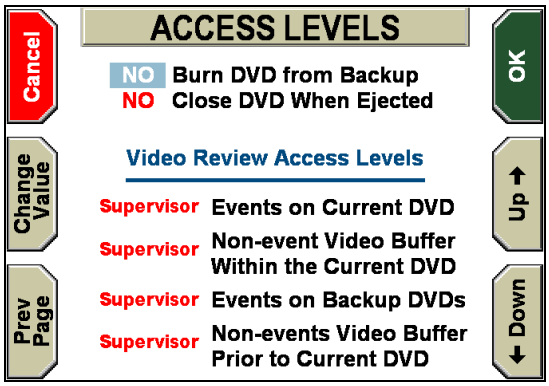


The **PERMISSION** screen is displayed.

For a description of the Permission options, see the *Department Default Policies* table on page 103.

Press the **Up**⬆ & **Down**⬇ keys to select the permission you wish to edit, and then press **Change Value** to toggle between **YES** and **NO**. **YES** enables the permission. **NO** disables the permission.

Press **Next Page** to display more settings.



Close DVD When Ejected determines when the *Current DVD* starts. The default DV-1 behavior is to start the *Current DVD* when a blank (or previously used) DVD is inserted and formatted. Setting this permission to **YES** allows the current officer to close-out the *Current DVD* when it is ejected so that no one can view his or her video.

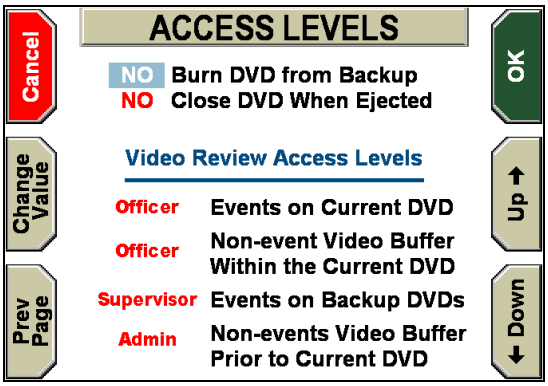
Press **OK** to confirm, or **Cancel** to exit without making changes.

Video Review Access Levels are explained in the next section.

8.5.1 Video Review Access Levels

Video Review Access Levels restrict who can view videos stored on a DVD. There are 4 zones where video is stored and may be viewed at a later time, based on the assigned access level:

- Event video on the current DVD
- Non-event video on the current DVD
- Event video on previous backup DVDs
- Non-event video prior to the current DVD



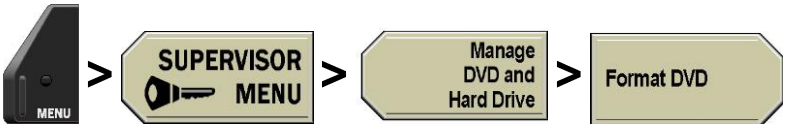
Each zone can have one of three access levels:

- **Officer** – Everyone can review this video zone
- **Supervisor** – The user is prompted for a Supervisor login whenever this zone is entered
- **Administrator** – The user is prompted for an Administrator login whenever this zone is entered

As the zone increases, the access level also increases (or at least stays the same). As an example, if zone 1 is set to Admin, all of the other zones are forced to Admin. However, using the example shown on the right, if zones 1 and 2 are set to Officer, zone 3 could be Supervisor, and zone 4 could be Admin.

8.6 MANAGE DVD AND HARD DRIVE

8.6.1 Format DVD



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Format DVD**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

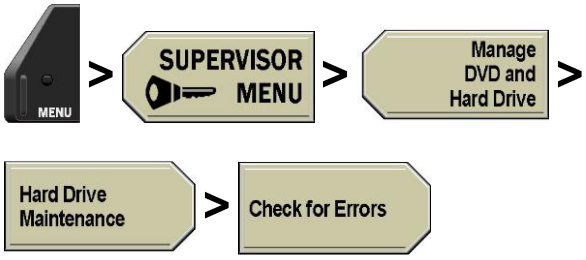
The **DVD FORMAT** screen is displayed.

Press **Format** to format the DVD, or **Cancel** to exit without formatting.

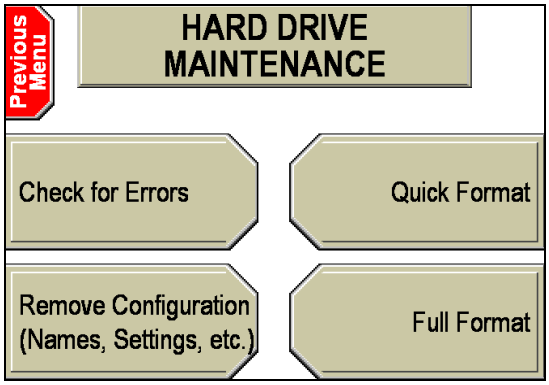
8.6.2 Check Hard Drive for Errors

CAUTION!
This operation should only be performed when instructed by Customer Service personnel. U.S. customers, call 1-800-605-6734 or email customerservice@watchguardvideo.com prior to selecting this option. International customers, contact your local distributor.

Use this procedure to check the hard drive partitions for errors.



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Hard Drive Maintenance** > **Check for Errors**.



If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The text to the right flashes across the screen. If these tests are not completed successfully, please contact WatchGuard Customer Service at 1-800-605-6734 or email customerservice@watchguardvideo.com.

Entering Maintenance Mode
Checking Partition 1…
Checking Partition 1…passed
Checking Partition 2…
Checking Partition 2…passed
Checking complete.

After completing the check for errors, press the **Reset** key to restart the DV-1.

For additional information on performing either a quick format or a full format of the hard drive, see *Hard Drive Quick Format* on page 109 or *Hard Drive Full Format* on page 111.

8.6.3 Remove Configuration (Names, Settings, etc.)

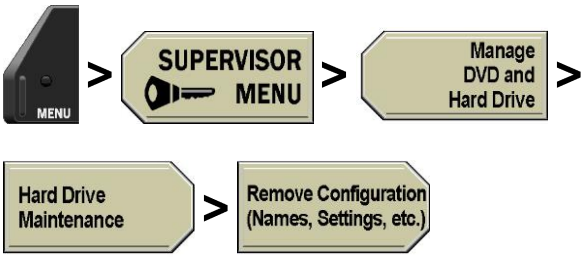
Use this procedure to restore the system to factory defaults in the case of an event such as a corrupted configuration file.

The configuration file stores information such as **Officer Names**, **PIN Numbers**, **Supervisors**, **Video Quality**, and **Vehicle ID**.

CAUTION!

This operation should only be performed when instructed by Customer Service personnel.

U.S. customers, call 1-800-605-6734 or email customerservice@watchguardvideo.com prior to selecting this option. International customers, contact your local distributor.



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Hard Drive Maintenance** > **Remove Configuration (Names, Settings, etc.)**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

When the **Remove Configuration** option is selected, all configuration file settings are removed (including all officer names), and a new default (blank) configuration file is created. **There is no confirmation message asking *Are you sure?* so take extra caution when selecting this option.**

8.6.4 Reset Recording State

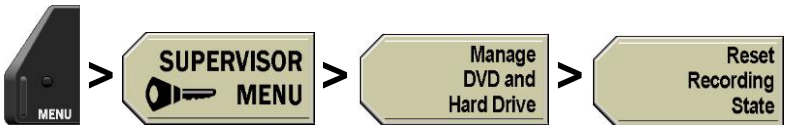
CAUTION!
This operation should only be performed when instructed by Customer Service personnel. U.S. customers, call 1-800-605-6734 or email customerservice@watchguardvideo.com prior to selecting this option. International customers, contact your local distributor.

This option resets the DVD state to allow the DV-1 to recover from system errors that may have halted the DVD burn process and rendered the system inoperable. The reset will result in data loss, and a new blank DVD is required to continue operation following the reset. If the current DVD is left in the drive, it will be treated as a previously used DVD. The user will be prompted to reuse it.

The reset will clear out the database storing the video burned to the current DVD and all backup DVDs. While the actual video is not lost when the recording state is reset, the ability to find the video easily using video review or to burn a previous DVD is lost. The video can be retrieved using the *Fleet Manager Utility*. See *Fleet Manager Utility* on page 97 for further details.

Resetting the recording state:

- Immediately cancels any pending unburned video from being burned
- Removes the files that describe the previous (i.e., backed up) DVDs
- Resets the current DVD session to a blank state so new video will be recorded to the beginning of the disc



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Reset Recording State**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

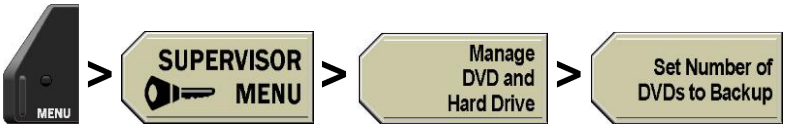
The **RESET RECORDING STATE** screen is displayed.

Press **Reset**. The system resets the recording state and then reboots.

Press **Cancel** to exit without resetting.

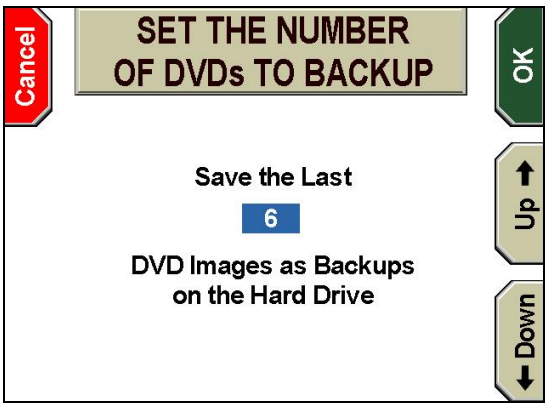
8.6.5 Set Number of DVDs to Backup

The hard drive stores (i.e., backs up) the number of DVDs specified in this configuration setting. These backups can be used to burn additional copies of previous DVDs. This function is intended to recover DVD content that has been lost or destroyed.



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Set Number of DVDs to Backup**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.



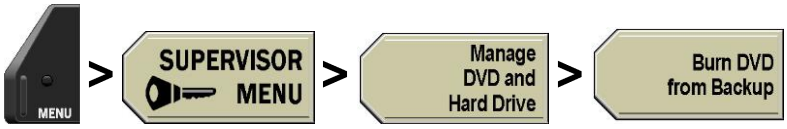
The **SET THE NUMBER OF DVDs TO BACKUP** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to increase or decrease the number of DVDs to backup.

Press **OK** to confirm, or **Cancel** to exit without making changes.

8.6.6 Burn DVD from Backup

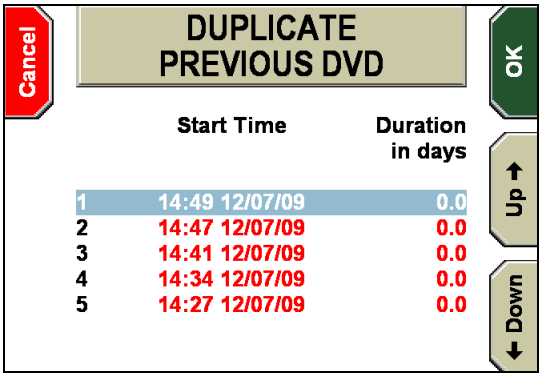
This feature provides the ability to make a copy of a previously burned DVD. It is especially useful for creating a copy of a lost, destroyed, or corrupted DVD.



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Burn DVD from Backup**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

The **DUPLICATE PREVIOUS DVD** screen is displayed.

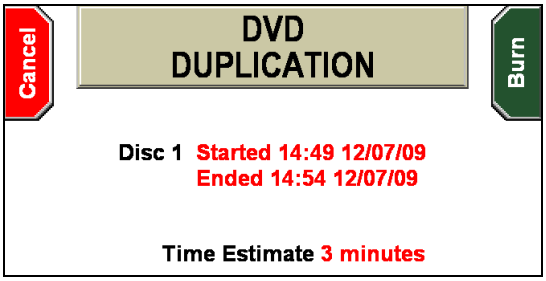


Press the **Up**⬆ & **Down**⬇ keys to select the DVD to duplicate.

Press **OK** to confirm, or **Cancel** to exit without making changes.

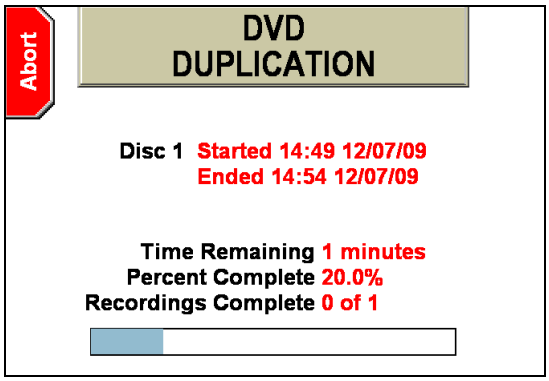
The screen lists the last *n* DVDs that the unit has produced, with the most recent at the top of the list (where *n* is the number of DVDs that have been set to be backed up).

The **DVD DUPLICATION** screen is displayed, showing the DVD's start/end times and the estimated time to duplicate the DVD.



Press **Burn** to duplicate the DVD, or **Cancel** to exit without making changes.

The DVD duplication process begins.



8.7 MANAGE SUPERVISOR PASSWORDS

Supervisor PIN numbers (passwords) can only be added, edited, and deleted by someone with an **Administrator PIN** number. There is only ONE **Administrator PIN** per agency. Contact WatchGuard Video for your **Administrator PIN**.

🔑 Indicates **Administrator PIN** required.

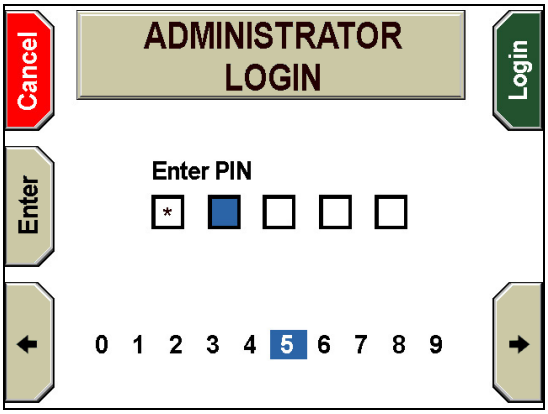
Unique PIN numbers can be set up for each Supervisor. Prior to setting up a Supervisor with a PIN number, you must first add the Supervisor as an Officer. See *Manage Officer Names* on page 26 for further details.

***Any* Supervisor PIN** number can be used to access restricted screens regardless of the active officer name. There is no need to change the active officer to the Supervisor name. This allows a Supervisor to gain quick access to assist a non-Supervisor officer.

🔑 Press **MENU** > **SUPERVISOR MENU** > **Manage Supervisor Passwords**.

If you have not previously logged in as Supervisor, or if you have exited the **Main Menu** after being logged in as Supervisor, the system asks for a **Supervisor PIN** number first. The system then asks for an **Administrator PIN** each time the **SUPERVISOR PASSWORDS** screen is accessed. See *Supervisor and Administrator Login* on page 78 for login instructions.

The **ADMINISTRATOR LOGIN** screen is displayed.



Press the ⬅ and ➡ keys to navigate to the correct number, and then press **Enter** to select each number. If you enter an incorrect number, **Invalid PIN** is displayed and you must start over again.

Press **Cancel** before the fifth number is entered to exit without logging in. The **Login** key is automatically pressed when the fifth number is selected.

8.7.1 Add Supervisor PIN

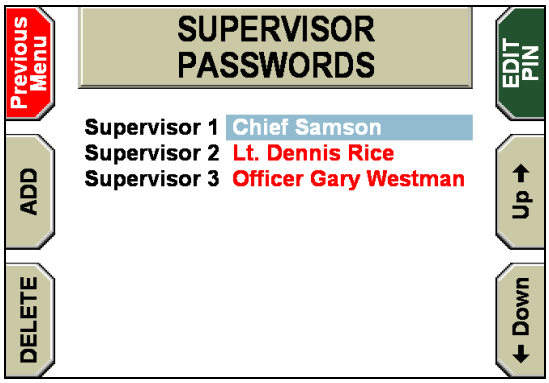
Use this procedure to add a **Supervisor PIN** for the selected officer.

Press **MENU** > **SUPERVISOR MENU** > **Manage Supervisor Passwords**.

The system will ask for an **Administrator PIN** each time the **SUPERVISOR PASSWORDS** screen is accessed. See *Supervisor and Administrator Login* on page 78 for login instructions.

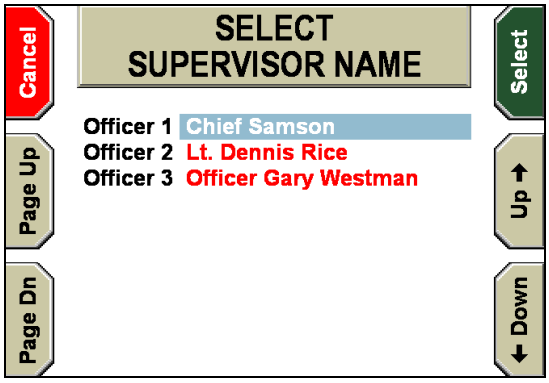
NOTICE
Once a user has logged in as an administrator, that administrator login stays current until the user exits the menu system. The system will NOT ask for an **Administrator PIN** again unless the user has exited the menu.

The **SUPERVISOR PASSWORDS** screen is displayed.



Press **ADD**.

The **SELECT SUPERVISOR NAME** screen is displayed.



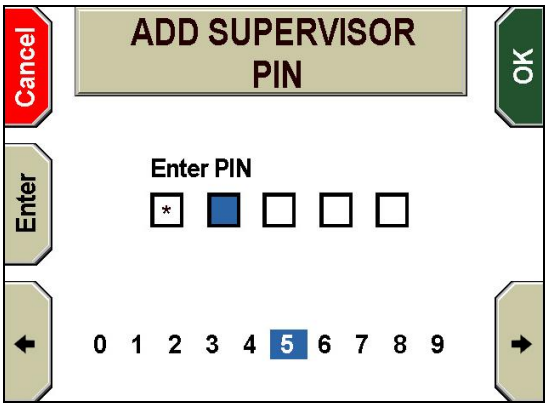
Press the **Up**⬆ & **Down**⬇ keys to select the officer's name. Press **Page Dn** & **Page Up** to scroll to the next 10 officer names.

Press **Select** to add a PIN number to be associated with that name.

The **ADD SUPERVISOR PIN** screen is displayed.

Press the ⬅ and ➡ keys to choose the number desired, and then press **Enter** to select each number.

Press **Cancel** before the fifth number is entered to exit without adding a **Supervisor PIN**. The **OK** key is automatically pressed when the fifth number is selected.



8.7.2 Edit Supervisor PIN

Use this procedure to change an existing **Supervisor PIN** for the selected officer.

Press **MENU** > **SUPERVISOR MENU** > **Manage Supervisor Passwords**.

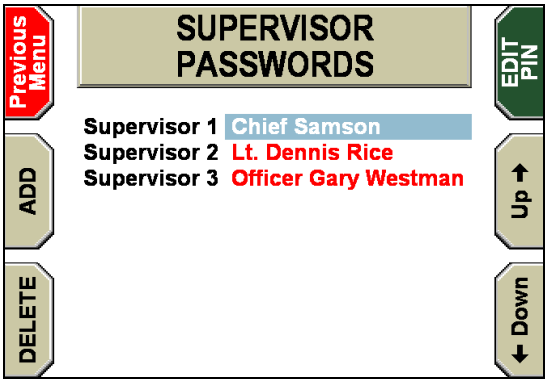
The system will ask for an **Administrator PIN** each time the **SUPERVISOR PASSWORDS** screen is accessed. See *Supervisor and Administrator Login* on page 78 for login instructions.

NOTICE
Once a user has logged in as an administrator, that administrator login stays current until the user exits the menu system. The system will NOT ask for an **Administrator PIN** again unless the user has exited the menu.

The **SUPERVISOR PASSWORDS** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to select the officer whose PIN you want to change.

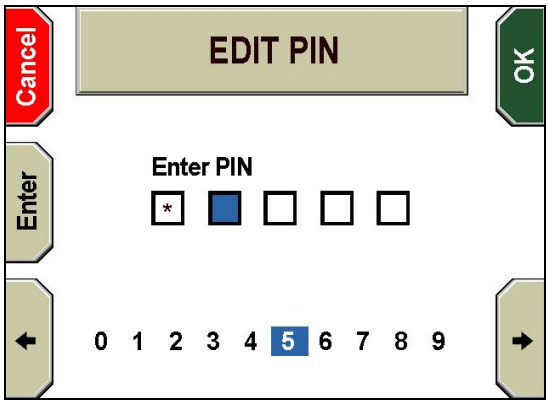
Press **EDIT PIN**.



The **EDIT PIN** screen is displayed.

Press the ⬅ and ➡ keys to navigate to the desired number, and then press **Enter** to select each number.

Press **Cancel** before the fifth number is entered to exit without editing the **Supervisor PIN** number. The **OK** key is automatically pressed when the fifth number is selected.



8.7.3 Delete Supervisor PIN

Use this procedure to remove an existing **Supervisor PIN** for the selected officer. The PIN number associated with the officer name will be removed. The officer name will not be removed.

Press **MENU** > **SUPERVISOR MENU** > **Manage Supervisor Passwords**.

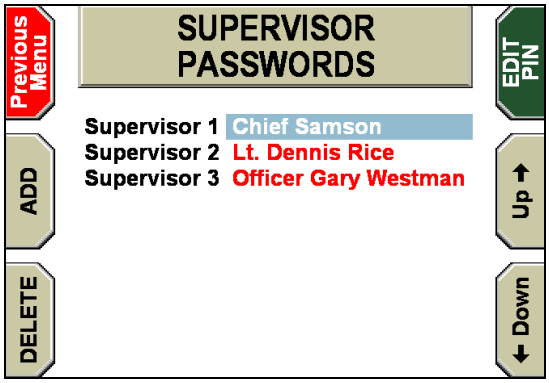
The system will ask for an **Administrator PIN** each time the **SUPERVISOR PASSWORDS** screen is accessed. See *Supervisor and Administrator Login* on page 78 for login instructions.

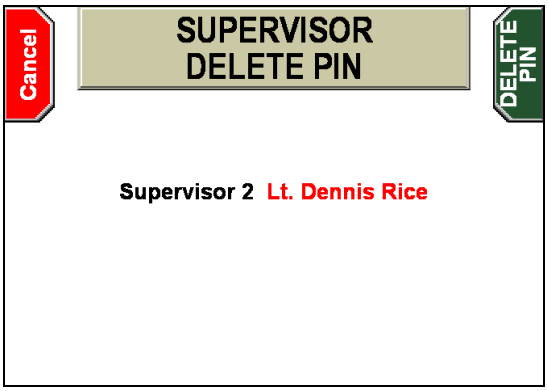
NOTICE
Once a user has logged in as an administrator, that administrator login stays current until the user exits the menu system. The system will NOT ask for an **Administrator PIN** again unless the user has exited the menu.

The **SUPERVISOR PASSWORDS** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to select the officer.

Press **DELETE**.





The **SUPERVISOR DELETE PIN** confirmation screen is displayed.

Press **DELETE PIN** to confirm, or **Cancel** to exit without deleting the **Supervisor PIN**.

8.8 UPDATING DV-1 FIRMWARE

The system firmware is designed to be updated by simply inserting a CD or DVD containing the updated firmware files.

NOTICE
Please ensure that all DVDs that are needed have been written and ejected prior to the upgrade.

To update the firmware in your DV-1, follow these steps:

- If you receive the update by email, copy all the distribution files to a CD or DVD+RW disc.
- Power up the DV-1.
- Verify that all pending video has been burned to a DVD.
- When no pending video remains, press the **STOP/QUIT** key for 2 seconds to eject any CD or DVD.
- Power the DV-1 unit off and then back on.
- Insert the CD or DVD containing the updated firmware files into the DVD drive and wait for the system to detect the update file (may take 30-60 seconds). After detection, the **UPGRADE SOFTWARE** screen is displayed.
- Press the **YES** key to start the firmware update.

After about 5 to 10 minutes, the system will reboot.

NOTICE
There may be as many as 4 reboots before the entire upgrade process finishes.

After a reboot, the **Now upgrading the kernel** screen may be displayed.

CAUTION!
DO NOT power off the system during this phase! Powering off the system at this point could cause it to become unusable.

After about 2 minutes, the phase finishes and the system reboots automatically.

After a reboot, the **IOP UPGRADE** screen may be displayed. Multiple steps will occur during this phase of the upgrade.

CAUTION!
DO NOT power off the system during this phase! Powering off the system at this point could cause it to become unusable.

When the phase finishes, the system reboots automatically.

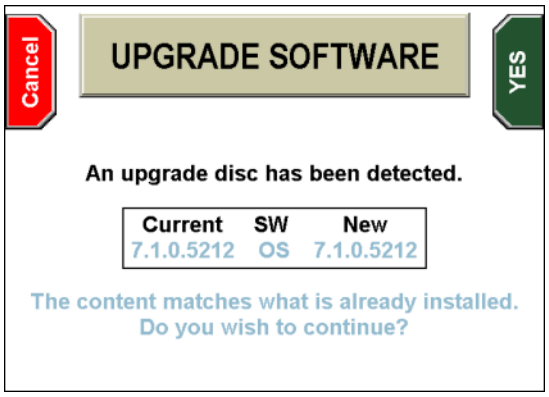
After a reboot, the **Now Upgrading bootloader** screen is displayed. This phase may take from a few seconds to as long as 15 minutes depending on the current version of software and the DV-1 type.

CAUTION!
DO NOT power off the system during this phase! Powering off the system at this point could cause it to become unusable.

When the phase finishes, the system reboots automatically.

After the entire upgrade process has finished, the **UPGRADE SOFTWARE** screen is again displayed. The screen shows the current and new software versions as the same version.

Press the **Cancel** key to eject the upgrade disc.



8.8.1 Troubleshooting a DV-1 Firmware Update

8.8.1.1 Unit Hangs at the DV-1 Splash Screen

During the update, the system can stay (or hang) at the DV-1 splash screen for a long time. If the system appears to hang at the splash screen, it may be recovering from a boot failure.

Follow these steps to recover:

- Wait for 15 minutes at the splash screen.
- If the system does not automatically reboot, turn off the vehicle ignition, then press the **POWER OFF** key.
- Wait for the system to power off.
- If the system does not power off, press the **POWER OFF** key again.
- Repeat this process until the system powers off.

NOTICE
You can also disconnect then reconnect power to the DV-1 unit, if desired.

- Once the system has powered off, press the **POWER ON** key to power the system on.
- Allow the system to power on completely.

Once the system has powered on, the software version may be a much older version. A message may also appear stating that the system has been reverted to an older version of software because the primary version failed.

- Insert a blank DVD and allow all pending video to be burned to the DVD.
- Once there is no longer any pending video, press and hold the **STOP/QUIT** key to eject the DVD.
- Wait for the system to eject the DVD, then power off and power on the system.
- Insert the update disc and proceed with the update process.

8.8.1.2 Unit Remains Powered Off On a Reboot

During the update, the system may remain powered off during an attempt to reboot.

If the system remains powered off for more than 1 minute, press the **POWER ON** key.

When the system powers on, the upgrade process continues automatically.

NOTICE
If the system does not upgrade successfully, contact WatchGuard Video customer service.

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9 Fleet Manager Utility

9.1 FLEET MANAGER UTILITY OVERVIEW

The *Fleet Manager Utility* is a Windows 7/Vista/XP application used to create configuration files that can be burned to a CD. This CD can then be loaded into the DV-1, and all the settings in the configuration file can be loaded into one or multiple vehicles. Settings include Department Name, Officer Names, Vehicle ID's, Pre- and Post-Event Times, etc. The *Fleet Manager Utility* is also capable of diagnostics and maintenance of the DV-1 through an Ethernet crossover cable connected to a PC.

Once you have created the configuration CD, insert it into the DV-1. The DV-1 automatically displays the list of configuration files on the CD, allowing the operator to choose which configuration file to import to the DV-1. Saving multiple configuration files on a single CD simplifies the process of loading different configurations onto different vehicles. The configuration file name is usually the vehicle ID name.

Documentation for all versions of the *Fleet Manager Utility* is on the web at: http://watchguardvideo.com/support

9.2 EVENT TAGS

Event tags are defined in the *Fleet Manager Utility* and loaded into the DV-1 on a configuration CD. When a DV-1 recording is ended, the in-car officer is prompted to provide additional details of the event that just occurred. Some examples of event tags are Event Category, Ticket Number, "Is the event critical evidence?", License Plate Number, etc.

There are 2 types of event tags:

- **Dropdown List** – The in-car officer selects from a list of answers when prompted with a question.
- **Text Field** – The in-car officer enters the answer in a text box; can be restricted to alphanumeric or numeric characters.

Event tags can be configured as follows:

- **Required** – Must enter an answer to continue
- **Optional** – Answer is not required; the in-car officer can either manually skip these, or the screen automatically advances if the event tag has a timeout configured.
- **Hidden** – Creates a non-editable default event tag that is never displayed to the in-car officer on the screen, but it is written to the DVD for each recording. This option is only available for **Text Field** event tags.

9.2.1 Adding an Event Tag

Once the DV-1 is configured with the event tags and a recording is ended using the **STOP/QUIT** key, the first event tag screen is displayed. A maximum of 6 event tags can be configured.

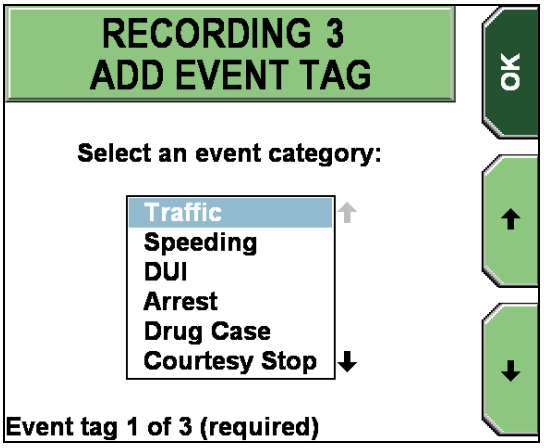
NOTICE
Actual event tag prompts will vary, but the basic navigation through the screens is the same. The following example has 3 event tag screens. The first two answers are required, and the last one is optional.

Press the **STOP/QUIT** key to end the recording.

The first **ADD EVENT TAG** screen is displayed.

On this example screen, the officer must press the ⬆ and ⬇ keys to highlight an event category.

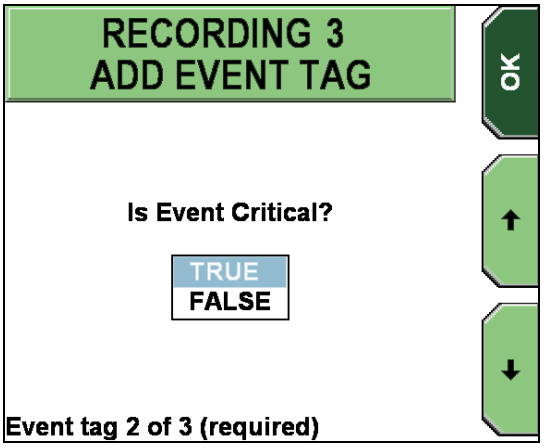
Press **OK** to advance to the next screen.



The next **ADD EVENT TAG** screen is displayed.

On this example screen, the officer must press the ⬆ and ⬇ keys to highlight **TRUE** or **FALSE**.

Press **OK** to advance to the next screen.



The next **ADD EVENT TAG** screen is displayed.

On this example screen, the event tag is optional. Optional event tags display the **Skip** key, allowing the officer to manually skip the screen. Optional event tags also allow a response timeout to be configured, if desired. On this screen, a timeout has been configured, indicated where it reads **18 secs**. Response timeouts can be configured from 10 to 300 seconds, in 10-second increments. When the screen is displayed, the timer begins counting down. When no response occurs before the timeout period expires, the screen advances automatically.

To make an entry on this example screen, the officer must press the ↔ and ↕ keys to navigate to the character(s) desired, and then press **Enter** to select. To erase an undesired character, press **Delete**.

Special characters are as follows:

- **SP** – Space bar
- ↑ – Uppercase/lowercase letters toggle
- ← and → arrows – Move the cursor left and right to allow character insertion

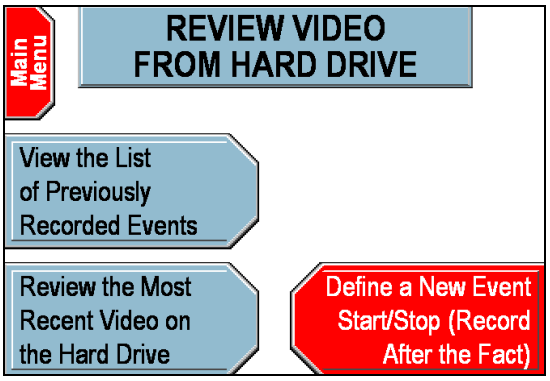
Press **OK**. If there are more event tags configured, the screen will advance to the next one, up to a maximum of 6 event tags.

9.2.2 Editing an Event Tag

To edit an event tag, the officer must navigate to the desired recorded event from **Video Review** mode.

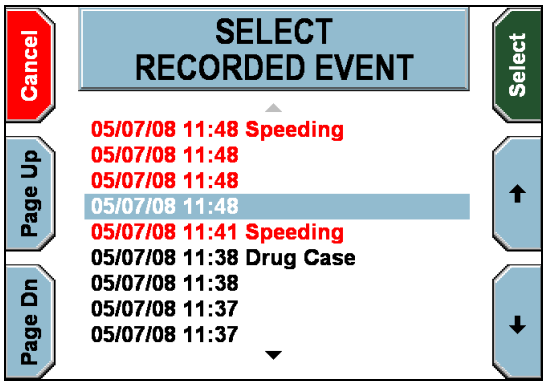
Press **MENU** > **VIDEO REVIEW**.

On the video review screen, press **View the List of Previously Recorded Events** to display a list of recorded events.



NOTICE
The DV-1 can playback events while simultaneously recording new events (both active or intentional recording plus background recording). However, the DVD drive will pause any burning activity while in **Video Review** mode.

The **SELECT RECORDED EVENT** screen is displayed.



Press the ⬆ and ⬇ keys to highlight the recorded event to review. Press **Page Dn** & **Page Up** to scroll to the next 10 recorded events. Red items are editable and black items are not.

Press **Select** to review the recorded event's details and/or playback the recorded event.

Press **Cancel** to return to the video review screen.

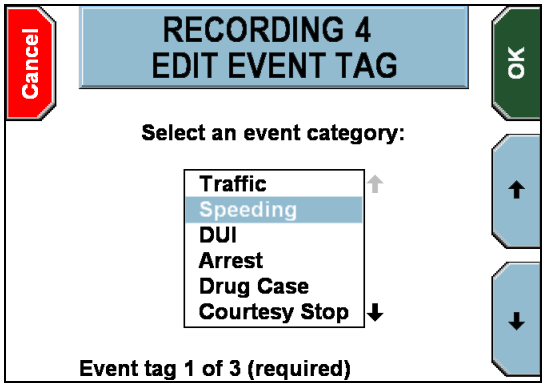
The **RECORDED EVENT DETAIL** screen is displayed, which shows details about the highlighted recorded event.

Press **Page Dn** to display additional details about the recorded event. Press **Play** to play the recorded event. Press **Reburn** to burn the event to a DVD.

Press **Edit Tags** to edit the event tags for the recorded event displayed. This key is only available for recorded events that have event tags associated.

NOTICE
Actual event tag prompts will vary, but the basic navigation through the screens is the same. The following example has 3 event tag screens. The first two answers are required, and the last one is optional.

The first **EDIT EVENT TAG** screen is displayed.



On this example screen, the officer must press the ⬆ and ⬇ keys to highlight a new event category.

Press **OK** to advance to the next screen, or **Cancel** to exit without making any modifications.

The next **EDIT EVENT TAG** screen is displayed.

On this example screen, the officer must press the ⬆ and ⬇ keys to highlight a new answer.

Press **OK** to advance to the next screen. If you press **Cancel**, the modifications made on any previous screen(s) are still saved.

The next **EDIT EVENT TAG** screen is displayed.

To make a modification on this example screen, the officer must press the ↔ and ↕ keys to navigate to the character(s) desired, and then press **Enter** to select. To erase an undesired character, press **Delete**.

Special characters are as follows:

- **SP** – Space bar
- ⬆ – Uppercase/lowercase letters toggle
- ← and → arrows – Move the cursor left and right to allow character insertion

Press **OK**. If you press **Cancel**, the modifications made on any previous screen(s) are still saved. If there are more event tags configured, the screen will advance to the next one, up to a maximum of 6 event tags.

9.3 FACTORY DEFAULT SETTINGS

The following tables show the Factory Default Settings from the *Fleet Manager Utility*.

Table 6 Department Default Preferences

Property	Value	Description
Wireless Microphone Volume	0 – OFF	Volume level when listening to live audio from wireless microphone when DV-1 is recording
Playback Cabin Volume	5	Playback volume level of cabin microphone when reviewing video on DV-1
Playback Wireless Microphone Volume	8	Playback volume level of wireless microphone when reviewing video on DV-1
DV-1 LED Panel Brightness	10 – MAX	Brightness level for the DV-1's backlit LED front panel buttons
DV-1 Screen Display (LCD) Brightness	5	Brightness level for the DV-1's LCD front panel screen
Microphone Setting	All Microphones Off	Determines which microphones are turned on
Forward Camera – Night View Mode	Auto	Increases overall light sensitivity at night
Forward Camera – Backlight Compensation Mode	No	Brightens overall exposure when a subject in foreground would otherwise appear dark due to strong backlighting
Forward Camera – Auto Zoom Hold Time	Hold tight zoom for 5 seconds	Amount of time for camera to stay in the tight zoom position when auto-zooming
Forward Camera – Auto Zoom Magnification Level	5 X Magnification	Zoom level for camera when auto-zooming
Forward Camera – Initial Zoom Magnification Level	1 X Magnification	Initial zoom level for camera on system startup
Rear Camera – Night View Mode	Off	Increases overall light sensitivity at night
Rear Camera - Backlight Compensation Mode	No	Brightens overall exposure when a subject in foreground would otherwise appear dark due to strong backlighting
Split Screen Display Settings	Forward Camera only	Select which camera feeds appear on the screen and also what video data is recorded to DVD video discs.
Screen Saver Wait Time	1 minute	Specifies how much idle time must elapse before the screen saver activates.
Screen Saver Exit On Record Start	True	Immediately exit screen saver mode when a recording begins.

Property	Value	Description
Screen Saver Active While Recording	False	Can the system enter screen saver while a recording is active.

Table 7 Department Default Policies

Property	Value	Description
Video Quality	4 Hours - Normal	Choose a quality/resolution setting for video that is recorded to DVD
Number of DVD Backups to keep on DV-1	4	Identifies the number of DVD archive backups to keep on the DV-1's hard disk for burning duplicate DVDs after the fact
Pre-Event Time Added to DVD Prior to Record	2 Minutes	Add up to 10 minutes of previous video footage before a recorded event
Post-Event Time Added to DVD After Recording	None	Automatically add up to 10 minutes of post video footage after a recorded event
Automatically Turn DV-1 On When Vehicle Is On	Yes	Automatically power on the DV-1 when the vehicle is turned on
Automatically Turn DV-1 Off When Vehicle Is Turned Off	Yes	Automatically power off the DV-1 when vehicle is turned off
Allow DV-1 To Be Powered Off When Vehicle Is On	Yes	Allow officer to shut down the DV-1 while vehicle is on
Automatically Turn On Both Microphones When Record Begins	Yes	(1st and 2nd Generation DV-1) Automatically switches the wireless microphone on when the DV-1 begins recording
Allow Officers to Turn Off Microphones While Recording	Yes	(1st and 2nd Generation DV-1) Allow officer to turn off microphones while recording
Allow Officers to Turn Off Wireless Microphone While Recording	Yes	(3rd Generation DV-1) Allow officer to turn off wireless microphone while recording
Allow Officers to Turn Off Cabin Microphone While Recording	Yes	(3rd Generation DV-1) Allow officer to turn off cabin microphone while recording
Automatically Turn On Wireless Microphone When Record Begins	Yes	(3rd Generation DV-1)Allow officer to turn on wireless microphone while recording
Automatically Turn On Cabin Microphone When Record Begins	Yes	(3rd Generation DV-1) Allow officer to turn on cabin microphone while recording
Force Cabin Microphone On Even When Not Recording	No	Always force cabin microphone on even when not recording
Charge Wireless Microphone While System Off	Yes	Charge the wireless microphone while the system is turned off.

Property	Value	Description
Allow Officers to Add/Delete/Edit Officer Names	Yes	Allow officer to add, delete, and edit any officer name information
Allow Officers to Edit Auto-Record Start/Stop Triggers	No	Allow officer to select which triggers will activate and/or end a recording
Allow Officers to Edit Camera Auto Zoom	Yes	Allow officer to change the auto-zoom sequence settings
Allow Officers to Edit Which Text Fields Are Recorded	No	Allow officer to select which on-screen text fields will be included in a recording
Allow Officers to Edit DV-1 Date and Time	Yes	Allow officer to set/edit the date and time on the DV-1
Allow Officers to Edit Vehicle ID	Yes	Allow officer to add/edit the vehicle identification number
Allow Officers to Edit Video Quality	No	Allow officer to set the level of DVD video quality for the recording
Allow Officers to Edit Input Devices	No	Allow officer to adjust settings for input devices
Allow Officers to Edit Pre/Post Event Recording Times	No	Allow officer to select times for Pre and Post Event recording settings
Allow Officers to Edit Department Name	No	Allow officer to enter/edit the department name
Allow Officers to Reuse DVD Discs Without Entering Supervisor Password	No	Allow officer to reuse a DVD disc without supplying a supervisor password
Allow Officers to Burn Archive Copy of DVD Without Entering Supervisor Password	No	Allow officer to burn an archive copy of a DVD without supplying a supervisor password
Auto-Record On Emergency Lights Activation	Yes	Start recording automatically when the emergency lights are activated
Auto-Record On Auxiliary Input Activation	No	Start recording automatically when the auxiliary device is activated
Auto-Record On Emergency Siren Activation	Yes	Start recording automatically when the emergency siren is activated
Auto-Record On Crash Detection	Yes	Start recording automatically when a patrol vehicle crash is detected. (May not be available on all DV-1 systems.)
Auto-Record On Wireless Microphone Activation	Yes	Start recording automatically when the wireless microphone is activated
Metadata Event Tags	No tags defined	Defines extra metadata tags that can be added to a record event by the in-car officer for a given traffic stop.

Property	Value	Description
Auto-Record Stop Trigger	5 minutes - Stop when start triggers inactive for 5 minutes	Stop recording automatically after a given period of inactive time transpires
Auto-Record Stop Trigger Confirmation Prompt	Yes	Confirm before automatically stopping during a record event
DV-1 Screen - Display Text Fields Master Switch	Yes	Global DV-1 setting that determines whether to display on-screen text on the DV-1 screen but has no impact on what is recorded to DVD
DV-1 Screen - Display Disc Usage	Yes	Determines whether the DVD disc usage bar is displayed on the DV-1 screen
Record to DVD - Auxiliary Status	No	Determines whether input from auxiliary device is recorded to DVD
Record to DVD - Officer Name	Yes	Determines whether selected officer name is recorded to DVD
Record to DVD - Patrol Vehicle ID	Yes	Determines whether vehicle ID is recorded to DVD
Record to DVD - Time and Date	Yes	Determines whether time/date is recorded to DVD
Record to DVD - Crash Detection	Yes	Determines whether crash detection is recorded to DVD
Record to DVD - Brakes Status	Yes	Determines whether input from brakes is recorded to DVD
Record to DVD - Department Name	Yes	Determines whether department name is recorded to DVD
Record to DVD - Lights and Siren Status	Yes	Determines whether input from lights and siren is recorded to DVD
Record to DVD - GPS Coords	No	Determines whether GPS coordinates are recorded to DVD
Record to DVD - Radar Speeds	No	Determines whether radar speeds are recorded to DVD

Table 8 Vehicle Default Preferences

Property	Value	Description
Vehicle ID		Unique text identifier for the vehicle
Vehicle Speed Units	MPH (miles per hour)	Vehicle speed sensor speed display units
Temperature Display Units	Fahrenheit	Choose the preferred setting for how temperature is displayed.
Fan Speed Offset	0	Choose the preferred setting for the relative fan speed offset. The larger the value, the faster the fan speed.
Emergency Siren	Yes	Monitor input from the emergency siren

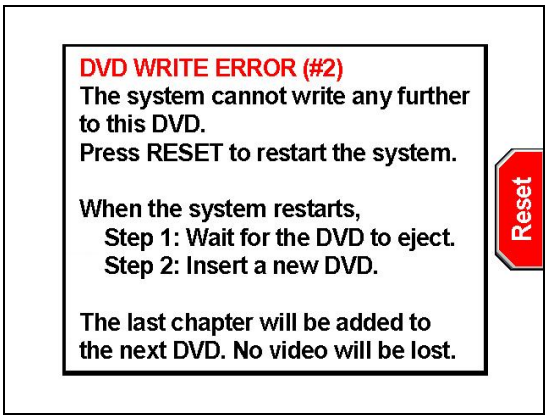
Property	Value	Description
Emergency Lights	Yes	Monitor input from the emergency lights
Brakes	Yes	Monitor input from the vehicle brakes
Auxiliary Input	No	Monitor input from the auxiliary input device
Crash Sensitivity	Medium	If applicable for your hardware, select the crash sensitivity setting for the DV-1.
Global Positioning System (GPS) Type	None	If applicable for your hardware, select the type of global positioning system (GPS) for the DV-1.
Display GPS Speed	Yes	Determines whether GPS speed is displayed (if GPS is configured)
Radar Type	None	Optionally choose the type of radar used by the system
Radar Display Fast Lock Speeds	Yes	Determines whether speed of fastest vehicle in a group of cars is displayed and whether the locked vehicle speed of the radar is displayed (if radar is configured)
Radar Display Patrol Speed	Yes	Determines whether speed of patrol vehicle is displayed (if radar is configured)
Radar Display Target Speeds	Yes	Determines whether speed of target vehicles is displayed (if radar is configured)

10 Troubleshooting

10.1 DVD WRITE ERRORS

Some percentage of all DVDs have flaws or scratches that cause the system to stop writing to the disc. This is the most common error type. Since the DV-1 first records to the internal hard drive, no video is lost as a result of these normal writing errors.

When you receive an error message, follow the on-screen instructions. If you are unsure of how to proceed, U.S. customers may contact Customer Service at 1-800-605-6734 or email customerservice@watchguardvideo.com. International customers, contact your local distributor.

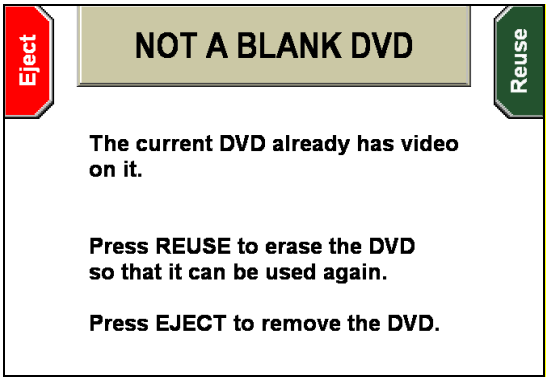


10.2 REUSE THE CURRENT DVD

If the system has been successfully burning to a DVD which then suddenly becomes unrecognized, and you are prompted to **Reuse the DVD**, perform the following steps:

1. Power off the DV-1 and turn it back on. Sometimes the system will be successful in recognizing the DVD after a restart.
2. If after a restart the DVD is still unrecognized, and it is again prompting to reuse, press the *soft* **Eject** key to eject the DVD.
3. Insert a new blank DVD.

The first disc should play all completed titles. Any uncompleted titles are then burned to the next DVD.



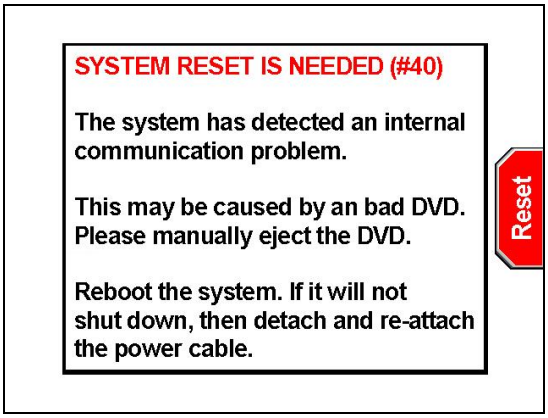
10.3 SOFT SYSTEM ERRORS

Most *soft errors* are fixed by rebooting. Soft errors occur occasionally when a software application or system process has stalled or crashed.

Most soft errors occur when the DVD drive has been struggling to read or write to a disc for an extended period of time, or by power interruption as a result of a vehicle start.

Soft errors may be identified as a communication problem or an error with an application name such as **STATEMGR**. A soft error does not mean there is a hardware problem.

When a soft error occurs, press **RESET** to restart the system.

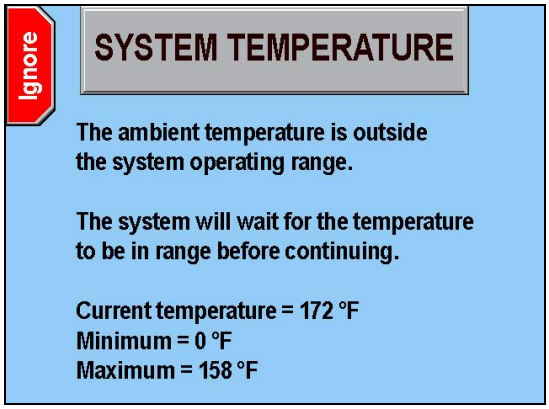


10.4 SYSTEM TEMPERATURE ISSUES

When the system starts, the fan runs at full speed until the temperature reading is in-range (between -20°C and +80°C). When the temperature is extreme (hot or cold) at startup, the system may not startup at all in order to protect the electronics. Once the temperature is in a safe operating range, the system boots up. This behavior means that in an over-temperature condition, the only notification to the user is that the fan will be on full speed.

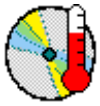
If the system is powered on and the temperature is in the -17°C to +70°C range, the message shown at the right appears. The system will NOT power off immediately. It will wait here at this screen until the temperature is in range.

When the system is already on and the temperature moves out of range (below -20°C or above +80°C), an error message is displayed and the system automatically shuts down.



10.4.1 DVD Drive Temperature Range

The DVD icon shown on the right is displayed when the temperature is outside the normal operating range of the DVD drive. When this occurs, the DVD drive is taken *offlin*e. It will go back *online* once the temperature normalizes.



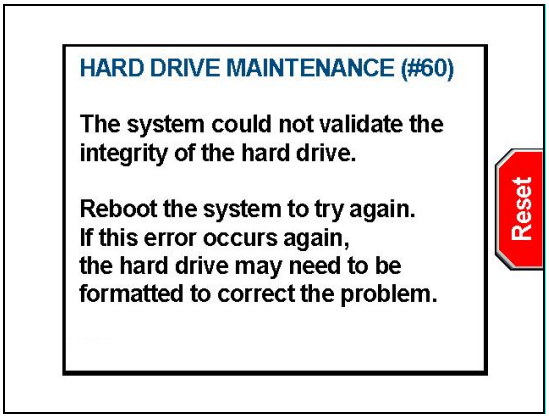
10.5 HARD DRIVE QUICK FORMAT

NOTICE
Supervisor access is required to format the hard drive from the **Supervisor** menu. Administrator access is required to format the hard drive from the *back door*.

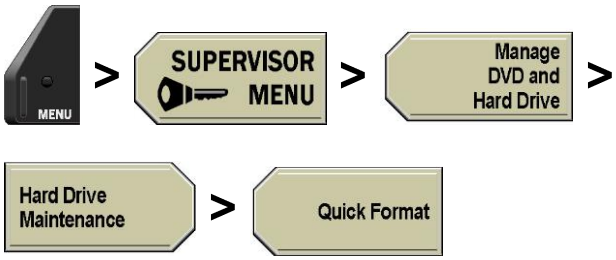
If certain key system files on the hard drive are corrupted, the hard drive may need to be wiped clean (formatted) in order to return the system to operability.

A **Quick Format** cleans the hard drive and corrects any problems caused by data corruption. **All video/audio data, configuration files, officer names, and Supervisor passwords are deleted**, and it takes about one minute. WatchGuard recommends performing a **Quick Format** before performing a **Full Format** to see if that fixes the problem.

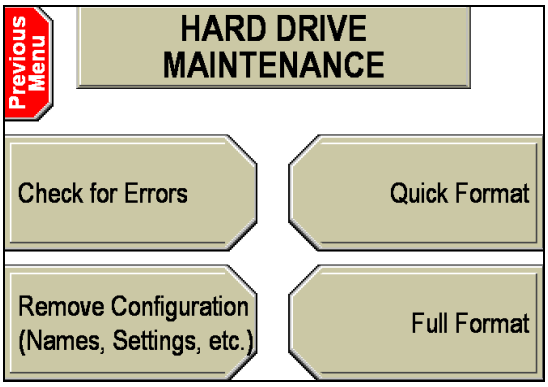
Errors titled **HARD DRIVE MAINTENANCE** generally indicate data corruption on the hard drive. Data corruption is usually caused by a power loss or a power interruption if the backup battery (UPS) is depleted.



WARNING!
This operation will cause all video on the hard drive to be lost!



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Hard Drive Maintenance** > **Quick Format**.



If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

A message saying **Entering Maintenance Mode** flashes on the screen.

The **HARD DRIVE FORMAT** screen appears.

Press **Format** to continue, **Config** to format the hard drive to its maximum capacity, or **Cancel** to exit without formatting.

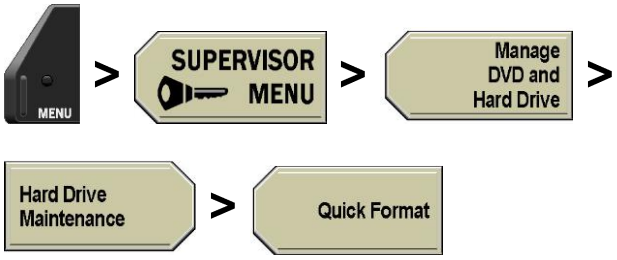
If you cancel the operation, the **HARD DRIVE MAINTENANCE** screen is displayed again. You must press **Reset** to exit the screen, and the system then reboots.

10.5.1 Format Hard Drive to Maximum Capacity

NOTICE
Supervisor access is required to format the hard drive from the **Supervisor** menu. Administrator access is required to format the hard drive from the *back door*. For more information on using the boot back door, see *DV-1 Back Door Maintenance Options* on page 114.

Formatting the DV-1 unit's hard drive to use its maximum capacity allows the entire capacity of the hard drive to be used rather than limiting it to 40 GB.

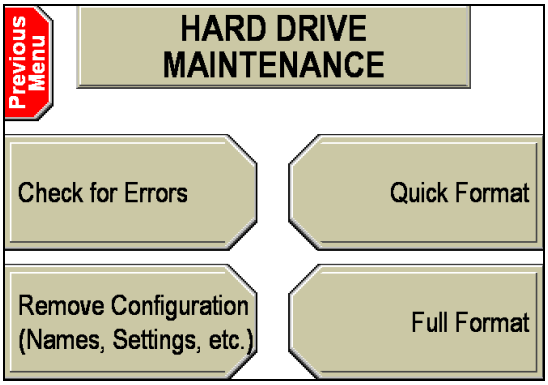
WARNING!
This operation will cause all video on the hard drive to be lost!



If using the **Supervisor** menu, press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Hard Drive Maintenance** > **Quick Format**.

If using the boot back door, when **Booting…** is displayed on the DV-1 screen (about 30 seconds after the unit is powered on), press the **STOP/QUIT** key on the front panel, then enter the **Administrator** password when prompted.

Navigate to the **HARD DRIVE MAINTENANCE** screen, then press the **Quick Format** key.



The **HARD DRIVE FORMAT** screen is displayed.

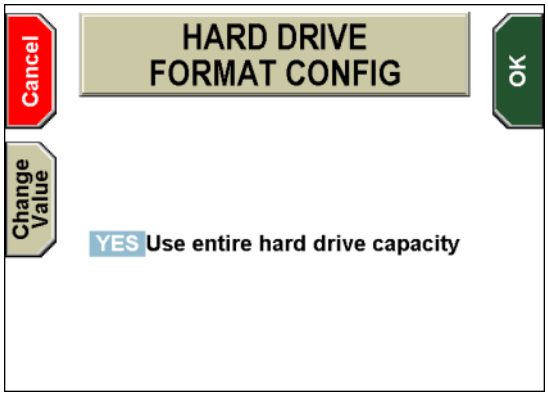
Press the **Config** key.

The **HARD DRIVE FORMAT CONFIG** screen is displayed.

Press the **Change Value** key to select **YES Use entire hard drive capacity**.

Press **OK** to return to the **HARD DRIVE FORMAT** screen, then **Format** to format the hard drive to use its entire capacity.

If you cancel the operation, the **HARD DRIVE MAINTENANCE** screen is displayed again. You must press **Reset** to exit the screen, and the system then reboots.



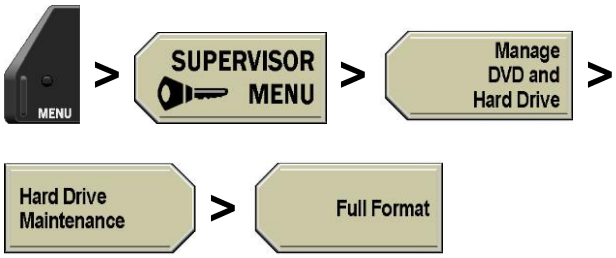
10.6 HARD DRIVE FULL FORMAT

NOTICE
Supervisor access is required to format the hard drive from the **Supervisor** menu. Administrator access is required to format the hard drive from the *back door*.

The operating system is capable of mapping around bad sectors by creating a *bad sector map* file, which is created during a **Full Format**. **All video/audio data, configuration files, officer names, and Supervisor passwords are deleted**, and it takes about 1-2 hours. If a system has been exhibiting signs of repeated hard drive corruption (for instance, after a **Quick Format** the corruption problems return), then it may be an indication that some sectors on the hard drive have become damaged or non-responsive.

WARNING!
This operation will cause all video on the hard drive to be lost!

A **Full Format** creates a bad sector map and erases all contents of the hard drive. This can take 1 to 2 hours. For faster results, perform a **Quick Format** before performing a **Full Format**. See *Hard Drive Quick Format* on page 109 for formatting instructions.



Press **MENU** > **SUPERVISOR MENU** > **Manage DVD and Hard Drive** > **Hard Drive Maintenance** > **Full Format**.

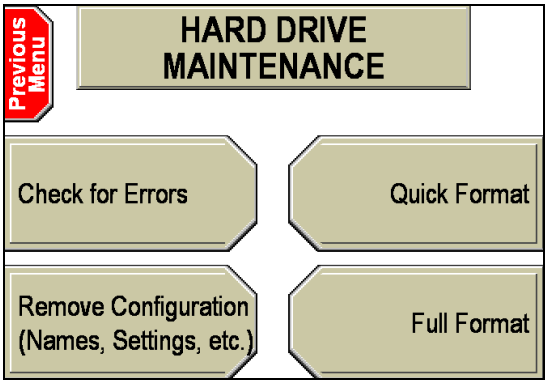
If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

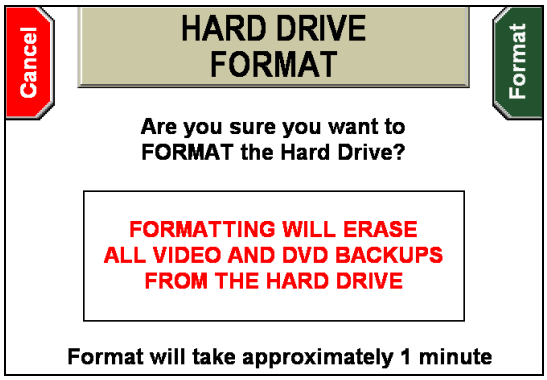
A message saying **Entering Maintenance Mode** flashes on the screen.

The **HARD DRIVE FORMAT** screen is displayed.

Press **Format** to continue, or **Cancel** to exit without formatting.

If you cancel the operation, the **HARD DRIVE MAINTENANCE** screen is displayed again. You must press **Reset** to exit the screen. The system then reboots.





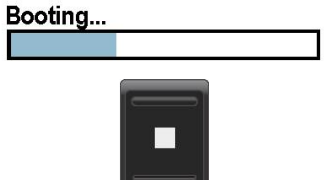
10.7 DV-1 BACK DOOR MAINTENANCE OPTIONS

NOTICE
Administrator access is required to access the *back door*.

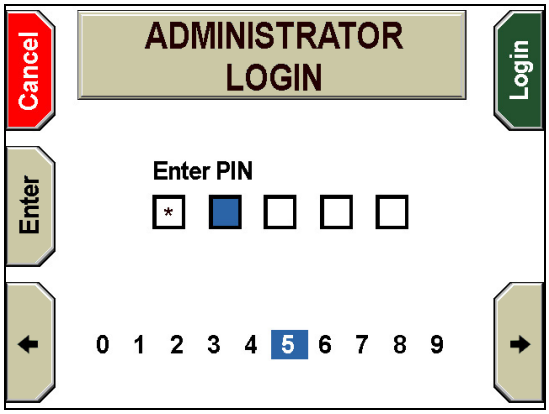
If system files required for system operation are corrupted, the DV-1 may fail to successfully start up. In those cases, the DV-1 *back door* must be accessed. Options such as hard drive format, network configuration, and scanning of the hard drive partition are provided.

WARNING!
The boot *back door* should only be accessed when directed by Customer Service personnel. U.S. customers, call 1-800-605-6734 or email customerservice@watchguardvideo.com prior to selecting this option. International customers, contact your local distributor.

The *back door* is accessed when initially starting the DV-1. To access the DV-1 through the *back door*, press the **STOP/QUIT** key at the moment the startup progress bar displays **Booting...**. This must be timed carefully, as there is only a 3-second window of time to do this.

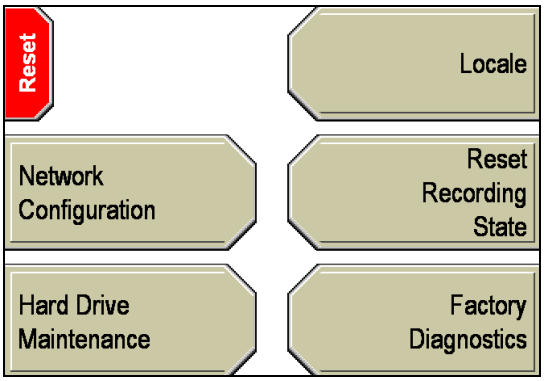


At the **ADMINISTRATOR LOGIN** screen, enter the **Administrator PIN** and press **Login**.



The DV-1 *back door* screen displays with the following options:

1. **Network Configuration** – Follow the steps in *Network Configuration* on page 115.
2. **Hard Drive Maintenance:**
   a. **Check Hard Drive for Errors** – Follow the steps in *Check Hard Drive for Errors* on page 83
   b. **Remove Configuration** – Follow the steps in *Remove Configuration (Names, Settings, etc.)* on page 84
   c. Follow the steps in *Hard Drive Quick Format* on page 109
   d. Follow the steps *Hard Drive Full Format* on page 113
   e. **Locale** - Follow the steps in *Setting the Locale* on page 116
3. **Reset Recording State** – Follow the steps in *Reset Recording State* on page 85
4. **Factory Diagnostics**
5. **Reset** – Restart the DV-1 so that any new changes take effect.



10.7.1 Network Configuration

The **Network Configuration** option allows the officer to enter the DV-1's *IP Address* and *Subnet Mask*. In most cases, you need not change these values; however, if physically connecting to the DV-1 via an Ethernet connection, the DV-1's IP address must be correctly set to successfully communicate through the Ethernet port.

Two possible reasons for needing to connect to the DV-1 through an Ethernet cable are:

- Uploading configuration settings directly from the *Fleet Manager Utility* to the DV-1 (bypassing the need to burn a configuration file to a CD)
- Running DV-1 diagnostics and maintenance from the *Fleet Manager Utility*

Documentation for all versions of the *Fleet Manager Utility* is on the web at: http://watchguardvideo.com/support

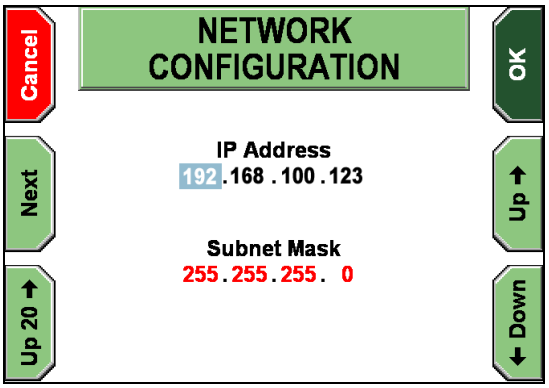
The DV-1 device is shipped from the factory with one of the following default assigned IP addresses:

- `192.168.0.123` – Existing systems
- `192.168.100.123` – New or refurbished systems

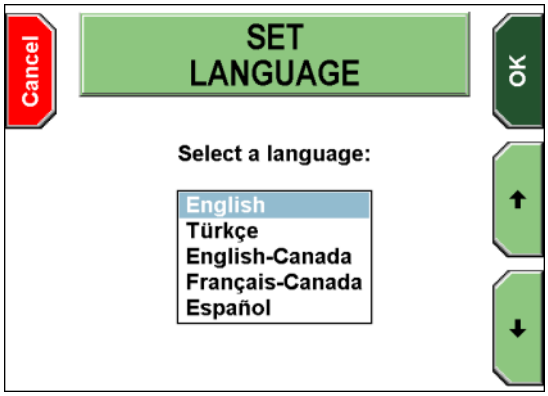
If the DV-1 is unable to connect at `192.168.0.123`, try `192.168.100.123`.

Press **Next** to move the cursor to the next number placeholder. Press the **Up**⬆ & **Down**⬇ keys to change the selected number. Use **Up 20**⬆ to increase the selected number 20 at a time.

Press OK when done making changes, or **Cancel** to exit without configuring the network.



10.7.2 Setting the Locale



On the boot *back door*, you can select between 5 languages, or locales: English, Turkish, English-Canada, French-Canada, and Spanish. English-Canada is the same as English except that the date format is DD-MM-YYYY instead of MM-DD-YYYY.

Press the ⬆ and ⬇ keys to select a language, and then press **OK**.

10.8 INSTALLATION PROBLEMS

Improper installation **WILL** cause system instability. **If errors are common, confirm that the installer has connected the power and ground wires through the firewall directly to the vehicle battery.** Grounding **ONLY** to the car frame or a terminal is not acceptable for reliable DV-1 operation.

10.9 POWER-RELATED ISSUES

10.9.1 System Resets or Hangs on Vehicle Start

The *Intelligent Uninterruptible Power Supply* Battery (iUPS) may require additional charge or may need to be replaced.

10.9.2 Auto Power-Up/Power-Down Not Working

Check the fuse in the ignition (switched) power wire. Check the settings in *Set System Behavior* on page 78.

10.9.3 System Stalls During Boot-Up

Allow up to 5 minutes to complete the file recovery process. If it has stalled at the startup progress bar, press the **OFF** key and attempt another restart. If it stalls again, a **Quick Format** of the DV-1 internal hard drive may be required. See *Hard Drive Quick Format* on page 109 for formatting instructions.

NOTICE
If the system cannot be booted, follow the instructions in *DV-1 Back Door Maintenance* on page 114.

11 Quick Start Guide

11.1 TURNING THE DV-1 ON & OFF

Press the **|** switch to turn the unit **on**.

Press the **O** switch to turn the unit **off**.

NOTICE
The DV-1 may power on/off automatically when the vehicle is started/stopped based on the settings programmed in the **Supervisor Menu** under *Set System Behavior* on page 78.

11.2 SET TIME AND DATE

Supervisor access is required unless the **Set Date and Time** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

When the DV-1 is turned off or loses power for any reason, the **SET TIME AND DATE** screen may be automatically displayed when power is restored. When already powered on, access this screen as follows:

Press **MENU** > **SYSTEM SETTINGS** > **Set Time, Date, Dept, Vehicle ID, Officer Names** > **Set Time and Date**.

If prompted to login, follow the steps listed in *Supervisor and Administrator Login* on page 78.

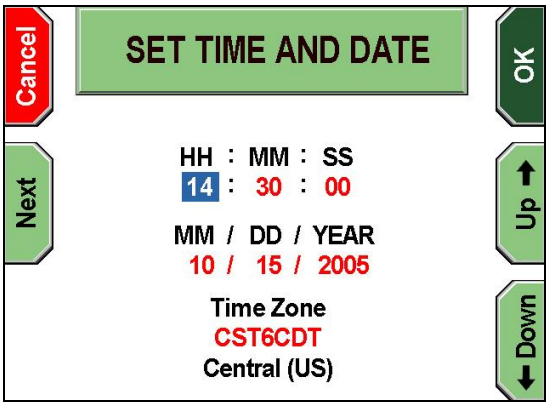
NOTICE
Many functions on the DV-1 device rely on the date and time. Arbitrary changes to the date and time can affect these functions.

The **SET TIME AND DATE** screen is displayed.

Press the **Up**⬆ & **Down**⬇ keys to change the individual settings.

Press the **Next** key to move the cursor to the next selection.

Press **OK** to confirm, or **Cancel** to exit without making changes.



On-screen fields are as follows:

- **HH** – Hour (Military Format – 24 hrs)
- **MM** – Minutes
- **SS** – Seconds
- **MM** – Month
- **DD** – Day
- **YEAR** – Year
- **Time Zone** – Time Zone

NOTICE
If your system includes the GPS option, the date and time are automatically updated using GPS time.

11.3 INSERT DVD

Unlock and open the DVD drive door and insert a DVD+RW disc, label side up, until the DVD drive pulls the disc inside.

NOTICE
Only DVD+RW discs can be used in the DV-1 system.

11.4 BLANK DISC DETECTED

When a blank disc is inserted, the screen shown on the right is displayed.

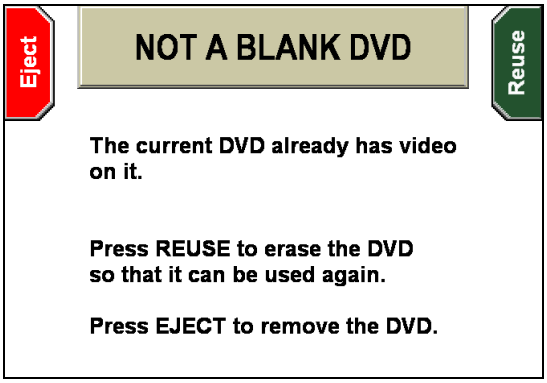
Press **YES** to format the DVD, or **NO** to exit the screen without formatting the DVD. (The DVD is automatically ejected if **NO** is selected.)

11.5 REUSE A DVD

When a used disc is inserted, the screen on the right is displayed. Press **Reuse** to confirm you wish to overwrite a used disc.

Supervisor access is required unless the **Reuse DVD** permission is set to YES. See *Manage Permissions for Settings* on page 80 for details on setting officer permissions.

CAUTION!
All data on the used disc will be erased when the **Reuse** key is selected.



11.6 START RECORDING

To begin recording an event (*title*) to DVD, activate a start-trigger such as the emergency lights, emergency siren, or wireless microphone, or press the **RECORD** key.

11.7 STOP RECORDING

Press the **STOP/QUIT** key to stop recording to DVD. Each recorded event creates a title on the DVD.

NOTICE
If the DV-1 has been configured to use event tags, the officer will be prompted to provide additional event details when ending a recording (pressing the **STOP/QUIT** key). See *Event Tags* on page 97 for further details.

11.8 EJECTING A DVD

CAUTION!
Do not use the **Manual Eject Button** on the DVD drive to eject discs because the system may not be done writing to the disc. Use only the **STOP/QUIT** key. Manually ejecting a DVD when the system has not finished burning files onto the disc may result in an unplayable DVD.

To eject a DVD, ensure that the drive door is unlocked, and then press and hold the **STOP/QUIT** key for at least 2 seconds.

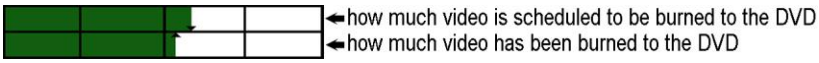
The **CONFIRM EJECT** screen is displayed.

Press **YES** to eject the DVD, or press **NO** to exit and return to the main screen.

See *Ejecting a DVD* on page 46 for further details.

11.9 DISC USAGE METER

The **Disc Usage Meter** shows graphically how much video has been recorded on the current DVD. The bar expands as video is recorded, with axis lines at 25%, 50%, and 75%.

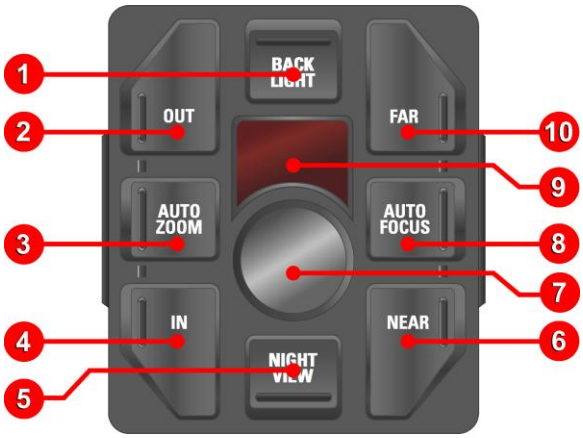


The top bar shows how much video is scheduled to be burned to the DVD. The bottom bar shows how much of the scheduled video has been burned to the DVD. The bar is **green** until there are only 30 minutes available on the DVD.

- Green = > 30 minutes
- Yellow = ≤ 30 minutes
- Red = ≤ 10 minutes

See *Disc Usage Meter* on page 52 for more information.

11.10 FRONT CAMERA KEYPAD



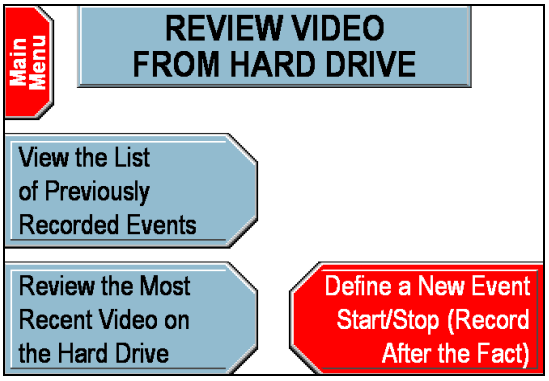
1	Backlight Compensation
2	Zoom Out (Manual)
3	Auto-Zoom
4	Zoom In (Manual)
5	Nightview Mode
6	Focus Near (Manual)
7	Cabin Camera
8	Auto-Focus
9	Infrared Array
10	Focus Far (Manual)

See *Front Camera Keypad Controls* on page 62 for further details.

11.11 VIDEO REVIEW MODE

To playback recorded or buffered events on the hard drive, first enter **Video Review** mode from the **Main Menu**.

Press **MENU** > **VIDEO REVIEW**.



The **REVIEW VIDEO FROM HARD DRIVE** screen is displayed.

On the video review screen, there are three choices:

- *View Previously Recorded Events* – See page 48
- *Review the Most Recent Video on the Hard Drive* – See page 47
- *Define a New Event Start/Stop (Record After the Fact)* – See page 49

NOTICE
The DV-1 can playback events while simultaneously recording new events (both active or intentional recording plus background recording). However, the DVD drive will pause any burning activity while in **Video Review** mode.

11.11.1 Show/Hide Menu

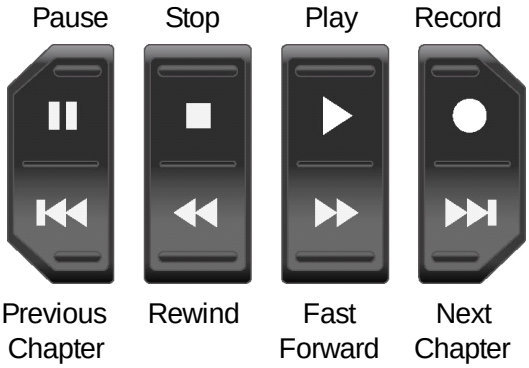
Press **Hide Menu** during playback to hide all graphical items and text, providing a better view of the recorded event. If menu and text has been hidden, press **Show** to display again.

11.11.2 Video Control Keys

Access **Video Review** mode as described in Section 5.4, and use the video control keys on the **Front Panel** to select and playback recorded events stored on the hard drive.

⏸	Pause
■	Stop playback; stop recording; eject DVD
⏵	Play
●	Record
⏮	Skip backward to the start of the previous chapter *
⏪	Rewind 60, 90, 120, or 180 seconds depending on the video quality
⏩	Fast-forward 60, 90, 120, or 180 seconds depending on the video quality
⏭	Skip forward to the start of the next chapter

* The Skip backward button must be pressed within five seconds of the start of the current chapter. If not, the review location only skips back to the start of the current chapter.



See *Automatic Event Segmentation* on page 51 for a description of how titles and chapters are segmented on a DVD.

11.12 CAMERA OVERVIEW

The DV-1 can operate up to 3 cameras:

- **Front Camera** – Main windshield-view zoom camera
- **Cabin Camera** – Backseat-view camera
- **Rear/Auxiliary Camera** – Optional and may have zoom capability

or

The system automatically senses which cameras are installed and provides controls in the **Camera Menu** accessible from the **Front Panel**.

The standard **Combination** camera consists of the **Front** and **Cabin** cameras which are built into the same enclosure. It includes **Camera Keypad** controls on the camera back which control only the **Front** camera. The **Cabin** camera has a fixed, wide-angle lens, and it does not include any manual controls.

The optional **Rear/Auxiliary Camera** is controlled exclusively through the **Camera Menu** on the **Front Panel**.

See *Front Camera Keypad Controls* on page 62 for further details.

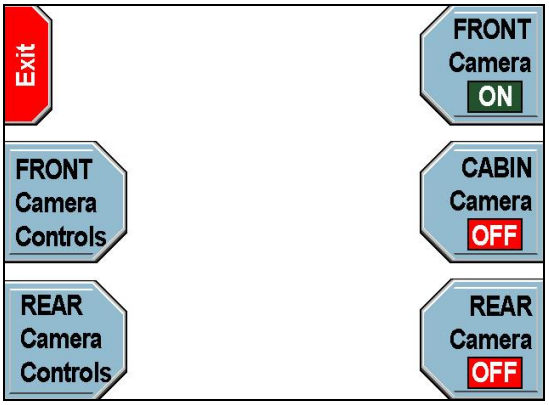
11.13 FRONT PANEL CONTROLS

11.13.1 Select Camera

Press the **CAMERA** key on the **Front Panel**.

Activate or deactivate cameras by pressing their corresponding keys. When two are selected, both cameras are displayed and recorded in a split-screen view.

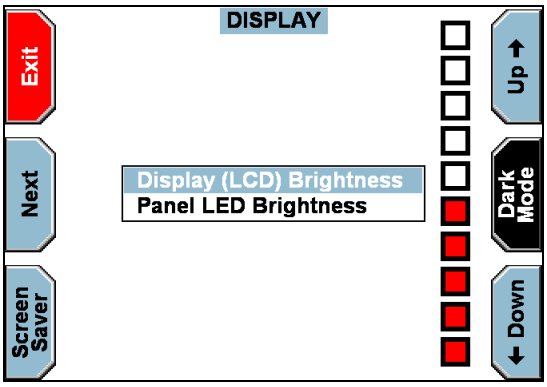
See *Camera Key* on page 61 for further details.



11.13.2 Display/Front Panel Brightness

CAUTION!
Display brightness levels may be adjusted down to off. Once the display is turned off, the operator can no longer view the menu system. Press any of the *soft* keys to return the display to normal.

Press the **DISPLAY** key on the **Front Panel**.

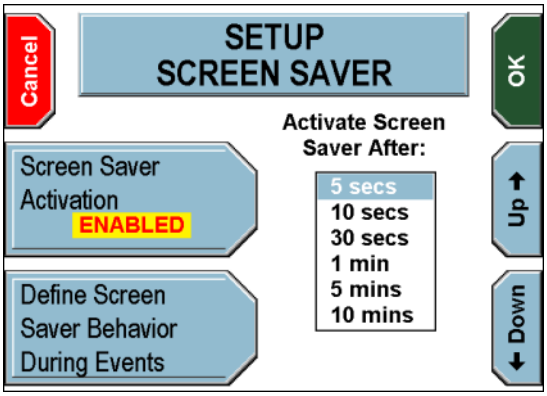


The **DISPLAY** screen is displayed.

Press the **Next** key to switch between display or panel brightness. Press the **Up**⬆ & **Down**⬇ keys to set the brightness level for the selection.

If desired, press **Screen Saver**.

The **SETUP SCREEN SAVER** screen is displayed.



Press the **Up**⬆ and **Down**⬇ keys to set the desired amount of time until the screen saver activates.

Press any key on the **Front Panel** or the camera to deactivate the screen saver. The screen saver is also deactivated when the ignition switch changes state.

See *Display Key* on page 57 for more details.

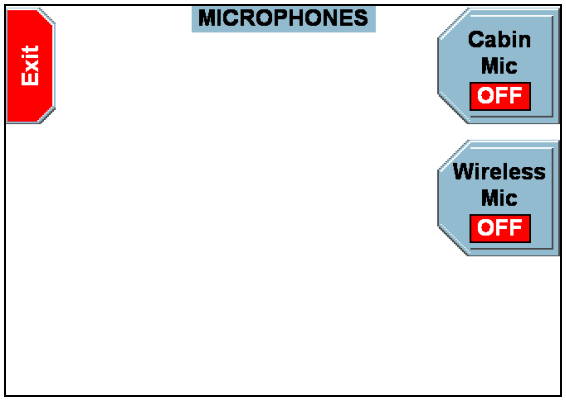
11.13.3 Microphones

There are several different types of microphones that may be included with the DV-1 system. For specific information on your particular microphone, please refer to the manufacturer's manual that is packaged with your microphone.

Press the **MICROPHONE** key on the **Front Panel**.

The **MICROPHONES** screen is displayed.

NOTICE
Turning microphones on or off using the **MICROPHONES** screen can interfere with the automatic behavior of the microphones when recordings are started or stopped. Any changes made to the microphones from the **MICROPHONES** screen override department default settings.



Corresponding LED indicators are lit above the **MICROPHONE** key on the **Front Panel** to indicate which microphones are active.

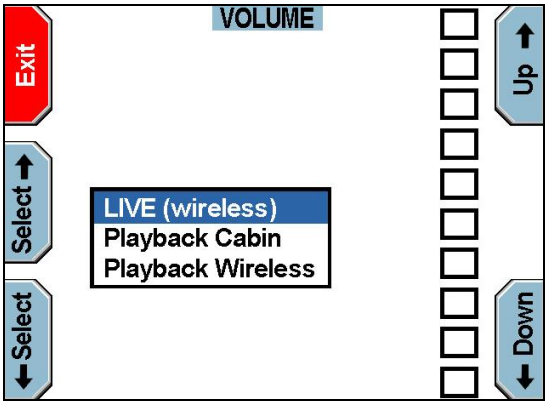
Press **Cabin Mic** to turn the cabin microphone **ON** or **OFF**.

Press **Wireless Mic** to turn the wireless microphone **ON** or **OFF**.

NOTICE
Officer may or may not have permission to turn off some or all microphones. See *Set Microphone Behavior* on page 79.

11.13.4 Volume Control

Press the **VOLUME** key on the **Front Panel**.



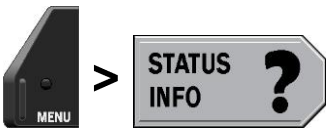
Press the **Select⬆** & **Select⬇** keys to choose between **LIVE (wireless)**, **Playback Cabin**, or **Playback Wireless**.

Press the **Up⬆** & **Down⬇** keys to set the volume level for one or more of the following selected items:

- **LIVE (wireless)** – Adjusts live feedback from the wireless microphone. This allows someone in the vehicle to monitor a live conversation transmitting from the wireless microphone. This should normally be set to the minimum.
- **Playback Cabin** – Adjusts volume of the cabin microphone when reviewing recorded events; does not affect microphone sensitivity.
- **Playback Wireless** – Adjusts volume of the wireless microphone when reviewing recorded events.

Press **Exit** when finished.

11.14 DVD DISC INFORMATION



View DVD disc information by pressing **MENU** > **STATUS INFO**.

The **DVD Disc Information** screen is displayed by default, as indicated by the red outline.

See *DVD Disc, drive, and media* on page 71 for a full description of the on-screen terms.

12 Other Modes of Operation

12.1 LOANER/ADVANCED REPLACEMENT MODE

The **Loaner** or **Advanced Replacement** mode allows the DV-1 system to be used for a specified period of time before it is locked and becomes unusable. A **Loaner** or **Advanced Replacement** unit is intended to serve as a temporary replacement unit while a purchased unit is being repaired.

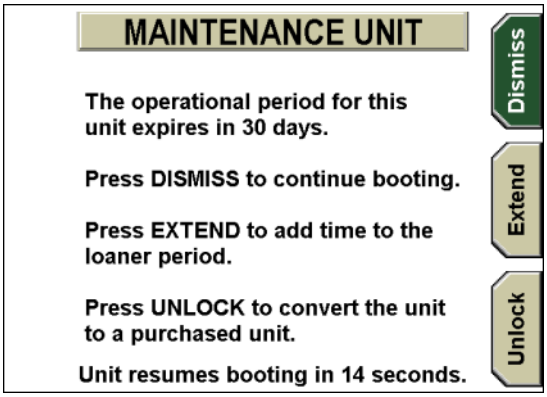
For example, the **Loaner** unit has its loaner time period set to 30 days. Each day the system is used, the loaner time period decreases by one day. When the number of remaining days reaches **0**, the **Loaner** DV-1 unit no longer functions.

If needed, the user can call WatchGuard Video Customer Service to either **Extend** the loaner time period or **Unlock** the unit.

NOTICE
The DV-1 screen uses the term **Maintenance** to refer to the **Loaner** mode.

At the beginning of a system boot, the screen shows how many days remain in the loaner time period.

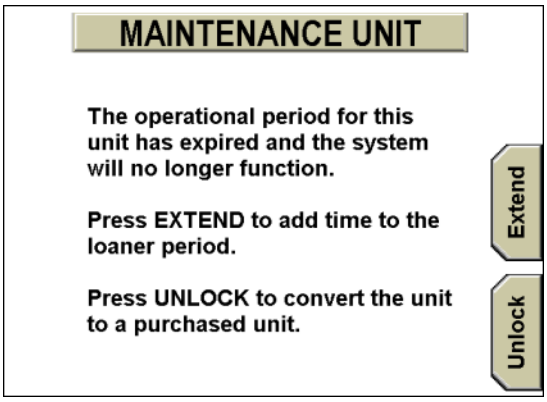
When the boot process begins, the **Booting** progress bar is displayed, and the **MAINTENANCE UNIT** challenge screen is presented. The challenge screen has four options:



- Press the **Dismiss** key to proceed with the boot process and dismiss the challenge screen immediately.
- Press the **Extend** key to add more time to the loaner time period. See *Extend Loaner/Advanced Replacement Mode Time* on page 128 for more information.
- Press the **Unlock** key to convert the DV-1 unit from a **Loaner** to a fully functional unit. See *Unlock Loaner/Advanced Replacement Mode* on page 130 for more information.
- Do nothing. After a 15 second countdown, the **Dismiss** key is automatically pressed and the boot process continues.

When the loaner time period has expired, the **MAINTENANCE UNIT** screen no longer displays the **Dismiss** key. Only the **Extend** and **Unlock** options remain.

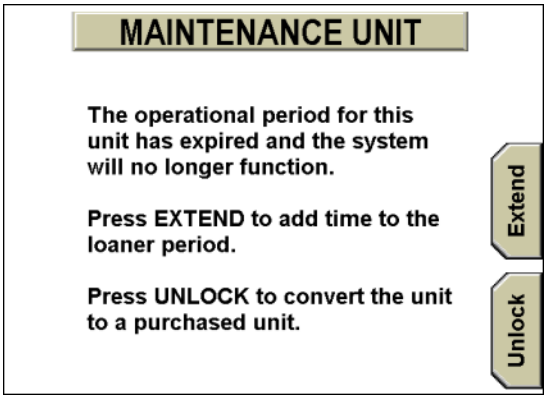
Press either **Extend** or **Unlock**, then follow the prompts to continue using the DV-1 unit.



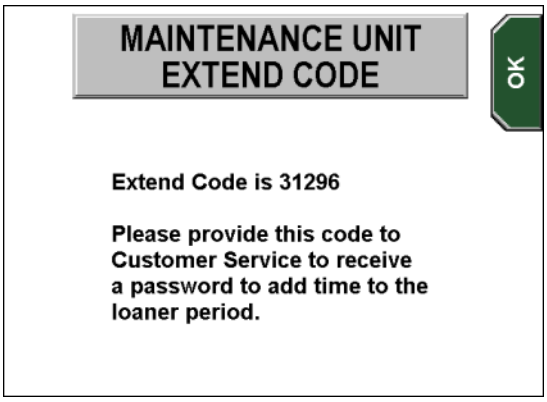
NOTICE
No additional **Loaner** time can be created by changing the date/time on the DV-1 unit. Setting the date/time of the unit forward reduces the number of **Loaner** days by the number of days the date/time was set ahead. Setting the date/time of the unit back does not affect the remaining number of **Loaner** days. The number of **Loaner** days remains the same.

12.1.1 Extend Loaner/Advanced Replacement Mode Time

Press **Extend** on the **MAINTENANCE UNIT** screen to start the process to extend the loaner time period on the DV-1 unit. The time extension can be from 1 to 99 days.



The **MAINTENANCE UNIT EXTEND CODE** screen is displayed.

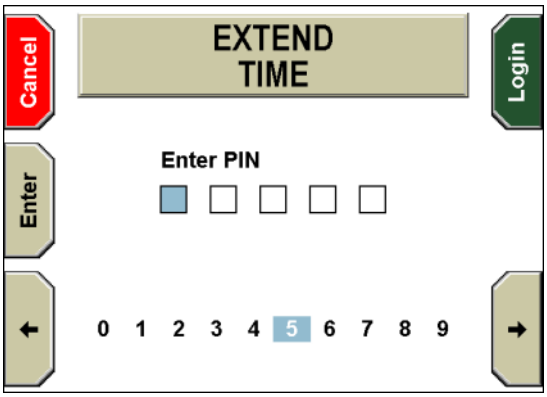


Note the **Extend Code**, then call WatchGuard Video Customer Service to request that the unit's loaner time period be extended.

Give the **Extend Code** to the customer service representative. The representative will give you a four- or five-digit **Extend Time PIN**.

Press the **OK** key.

The **EXTEND TIME** screen is displayed.



Use the arrow keys to move to a digit in the **PIN**, then press the **Enter** key. Repeat as necessary to enter the entire **PIN**.

If the **PIN** has five digits, the **Login** key is pressed automatically after you enter the last digit.

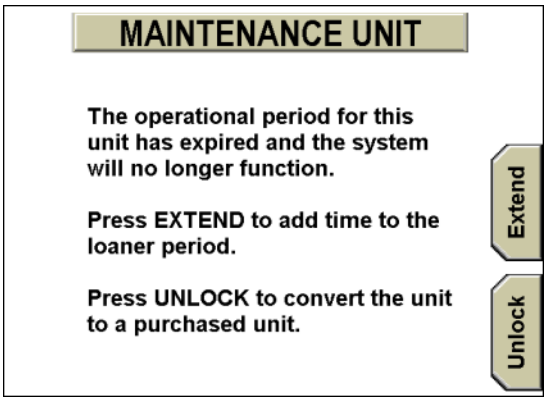
If the **PIN** has four digits, press the **Login** key after you enter the fourth digit.

A brief message is displayed stating that the loaner time period has been extended.

NOTICE
The **Extend** feature adds days relative to the **Loaner** expiration date. For example, if 3 days remain in the loaner time period, and 10 days are added with the **Extend** feature, the DV-1 unit will have 13 days remaining in the loaner time period (3 + 10 = 13). If the loaner time period has been expired for 3 days, and 10 days are added, the DV-1 unit will have 7 days remaining in the loaner time period (-3 + 10 = 7).

12.1.2 Unlock Loaner/Advanced Replacement Mode

Press **Unlock** on the **MAINTENANCE UNIT** screen to start the process to convert the **Loaner** DV-1 unit to a fully functional unit.

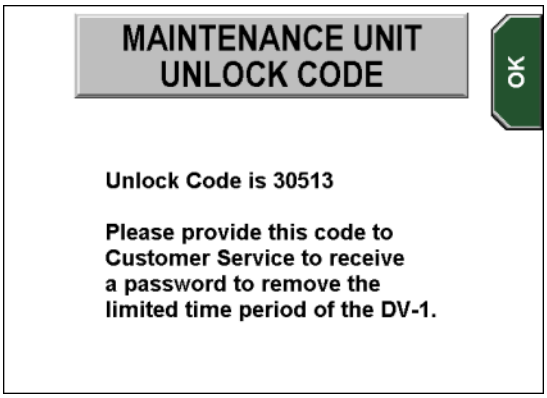


The **MAINTENANCE UNIT UNLOCK CODE** screen is displayed.

Note the **Unlock Code**, then call WatchGuard Video Customer Service to request that the **Loaner** unit be unlocked to convert it to a fully functional unit.

Give the **Unlock Code** to the customer service representative. The representative will give you a four- or five-digit **Unlock Unit PIN**.

Press the **OK** key.



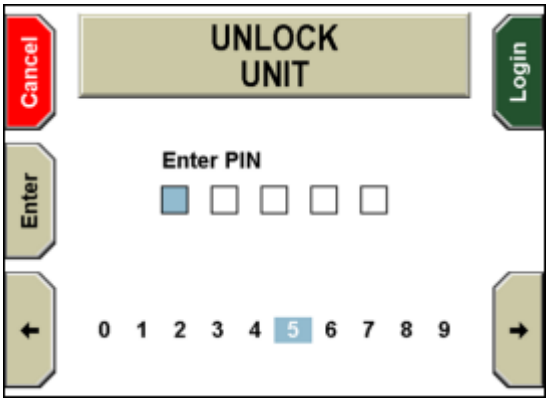
The **UNLOCK UNIT** screen is displayed.

Use the arrow keys to move to a digit in the **PIN**, then press the **Enter** key. Repeat as necessary to enter the entire **PIN**.

If the **PIN** has five digits, the **Login** key is pressed automatically after you enter the last digit.

If the **PIN** has four digits, press the **Login** key after you enter the fourth digit.

The **Loaner** DV-1 unit has been successfully converted to a fully functional unit. The **MAINTENANCE UNIT** challenge screen will no longer be displayed at the beginning of the boot process.



12.2 EVALUATION MODE

The **Evaluation** mode allows the DV-1 system to be used for a specified period of time before it is locked and becomes unusable. **Evaluation** units are intended to be used by potential customers so they can evaluate the DV-1 units before making a buying decision.

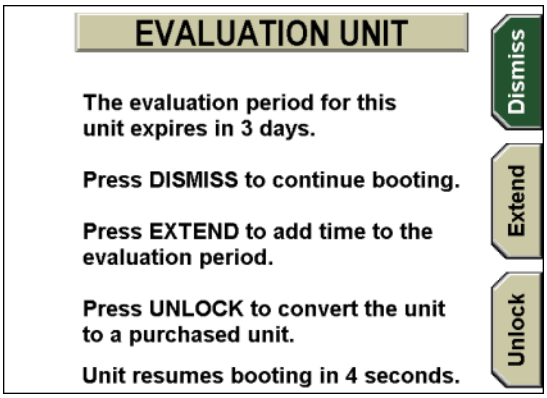
For example, the **Evaluation** unit has its evaluation time period set to 30 days. Each day the system is used, the evaluation time period decreases by one day. When the number of remaining days reaches **0**, the **Evaluation** DV-1 unit no longer functions.

If needed, the user can call WatchGuard Video Customer Service to either **Extend** the evaluation time period or **Unlock** the unit.

NOTICE
The unit begins informing the **Evaluation** user of the number of days remaining in the evaluation time period when there are 5 days left.

Once the evaluation time period has reached 5 days, each time the system begins booting, the screen shows how many days remain in the evaluation time period.

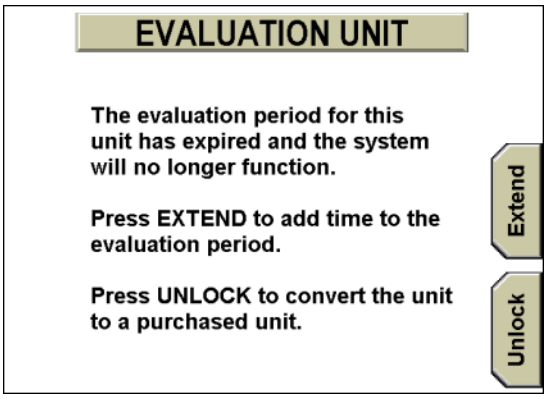
When the boot process begins, the **Booting** progress bar is displayed, and the **EVALUATION UNIT** challenge screen is presented. The challenge screen has four options:



- Press the **Dismiss** key to proceed with the boot process and dismiss the challenge screen immediately.
- Press the **Extend** key to add more time to the evaluation time period. See *Extend Evaluation Mode Time* on page 132 for more information.
- Press the **Unlock** key to convert the DV-1 unit from an **Evaluation** unit to a fully functional unit. See *Unlock Evaluation Mode* on page 134 for more information.
- Do nothing. After a 15 second countdown, the **Dismiss** key is automatically pressed and the boot process continues.

When the evaluation time period has expired, the **EVALUATION UNIT** screen no longer displays the **Dismiss** key. Only the **Extend** and **Unlock** options remain.

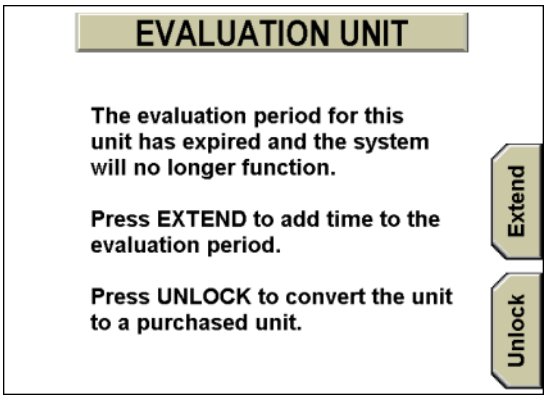
Press either **Extend** or **Unlock**, then follow the prompts to continue using the DV-1 unit.



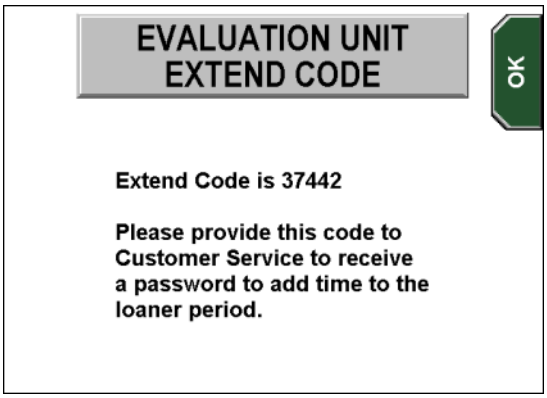
NOTICE
No additional **Evaluation** time can be created by changing the date/time on the DV-1 unit. Setting the date/time of the unit forward reduces the number of **Evaluation** days by the number of days the date/time was set ahead. Setting the date/time of the unit back does not affect the remaining number of **Evaluation** days. The number of **Evaluation** days remains the same.

12.2.1 Extend Evaluation Mode Time

Press **Extend** on the **EVALUATION UNIT** screen to start the process to extend the evaluation time period on the DV-1 unit. The time extension can be from 1 to 99 days.



The **EVALUATION UNIT EXTEND CODE** screen is displayed.

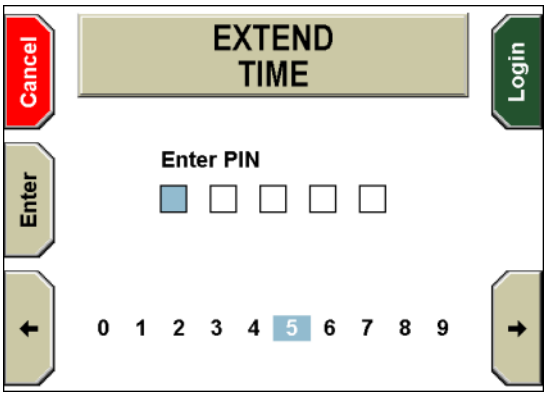


Note the **Extend Code**, then call WatchGuard Video Customer Service to request that the unit's evaluation time period be extended.

Give the **Extend Code** to the customer service representative. The representative will give you a four- or five-digit **Extend Time PIN**.

Press the **OK** key.

The **EXTEND TIME** screen is displayed.



Use the arrow keys to move to a digit in the **PIN**, then press the **Enter** key. Repeat as necessary to enter the entire **PIN**.

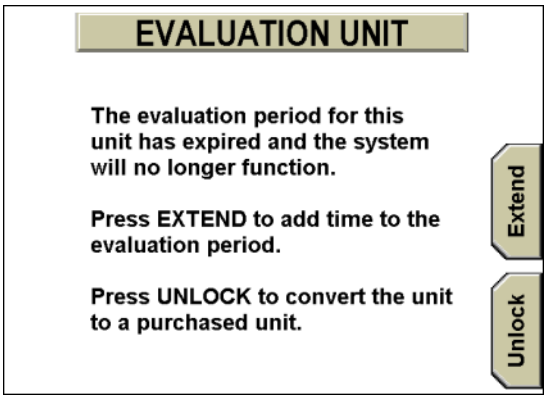
If the **PIN** has five digits, the **Login** key is pressed automatically after you enter the last digit.

If the **PIN** has four digits, press the **Login** key after you enter the fourth digit.

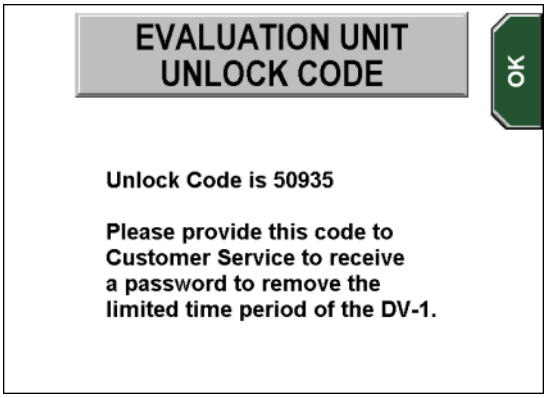
A brief message is displayed stating that the evaluation time period has been extended.

NOTICE
The **Extend** feature adds days relative to the **Evaluation** expiration date. For example, if 3 days remain in the evaluation time period, and 10 days are added with the **Extend** feature, the DV-1 unit will have 13 days remaining in the evaluation time period (3 + 10 = 13). If the evaluation time period has been expired for 3 days, and 10 days are added, the DV-1 unit will have 7 days remaining in the evaluation time period (-3 + 10 = 7).

12.2.2 Unlock Evaluation Mode



Press **Unlock** on the **EVALUATION UNIT** screen to start the process to convert the **Evaluation** DV-1 unit to a fully functional unit.

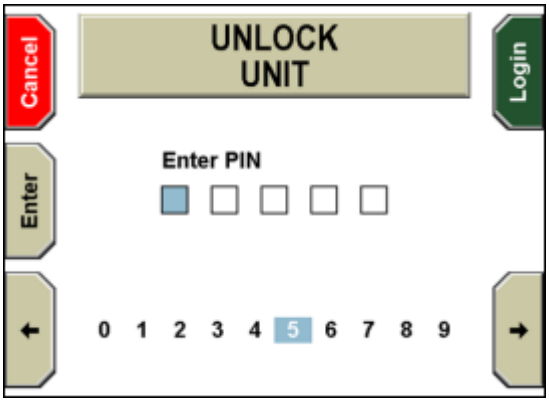


The **EVALUATION UNIT UNLOCK CODE** screen is displayed.

Note the **Unlock Code**, then call WatchGuard Video Customer Service to request that the **Evaluation** unit be unlocked to convert it to a fully functional unit.

Give the **Unlock Code** to the customer service representative. The representative will give you a four- or five-digit **Unlock Unit PIN**.

Press the **OK** key.



The **UNLOCK UNIT** screen is displayed.

Use the arrow keys to move to a digit in the **PIN**, then press the **Enter** key. Repeat as necessary to enter the entire **PIN**.

If the **PIN** has five digits, the **Login** key is pressed automatically after you enter the last digit.

If the **PIN** has four digits, press the **Login** key after you enter the fourth digit.

The **Evaluation** DV-1 unit has been successfully converted to a fully functional unit. The **EVALUATION UNIT** challenge screen will no longer be displayed at the beginning of the boot process.

Glossary of Terms

Auto-Focus – Allows the camera to self-focus.

Auto-Record Triggers – Configurable Start or Stop triggers such as lights, sirens, and microphone activation which make the unit begin recording to DVD automatically.

Auto-Zoom – Zooms to a preset level and holds zoom for a preset time.

Back Light Compensation – Brightens the overall exposure when the subject in the foreground would otherwise appear dark due to strong back-lighting.

Closed-Captioning Text – All of the DV-1's textual information (meta-data) such as time, date, officer name, etc.

DVD Manager Utility (DMU) – A Windows software application with DVD tools including disc copy, save to MPEG-2, and corrupted disc data recovery. See *Software Programs for Playback* on page 66 for more information.

Fleet Manager Utility (FMU) – A Windows 7/Vista/XP software application used to create configuration files for loading batch settings into the DV-1 unit. See *Fleet Manager Utility* on page 97 for more information.

Night View – Optimizes the camera settings for nighttime operation; auto-focus is turned off and the focus point is set to about 50 feet.

Post-Event Video – Configurable amount of post-video (up to 10 minutes) that is recorded to the DVD when the **STOP/QUIT** key is pressed.

Pre-Event Video – Configurable amount of pre-video (up to 10 minutes) that is recorded to the DVD when the **RECORD** key is pressed.

Recorded Event – A single recording of an event.

Title – Each recorded event is organized as a title on the DVD with a thumbnail image along with time/date text on the DVD startup menu page.

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